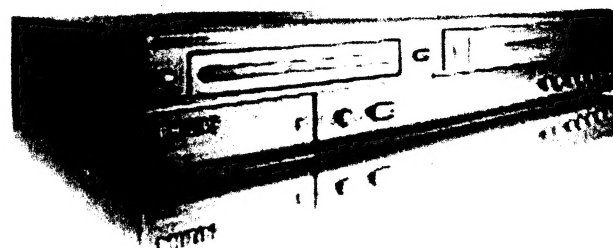


Service
Service
Service



Service Manual

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PHILIPS

SECTION 1

SUMMARY

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PRODUCT SAFETY SERVICING GUIDELINES FOR VIDEO PRODUCTS

IMPORTANT SAFETY NOTICE

This manual was prepared for use only by properly trained audio-video service technicians.

When servicing this product, under no circumstances should the original design be modified or altered without permission from PHILIPS Electronics Corporation. All components should be replaced only with types identical to those in the original circuit and their physical location, wiring and lead dress must conform to original layout upon completion of repairs.

Special components are also used to prevent x-radiation, shock and fire hazard. These components are indicated by the letter "X" included in their component designators and are required to maintain safe performance. No deviations are allowed without prior approval by PHILIPS Electronics Corporation.

Circuit diagrams may occasionally differ from the actual circuit used. This way, implementation of the latest safety and performance improvement changes into the set is not delayed until the new service literature is printed.

CAUTION: Do not attempt to modify this product in any way. Never perform customized installations without manufacturer's approval. Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury.

Service work should be performed only after you are thoroughly familiar with these safety checks and servicing guidelines.

GRAPHIC SYMBOLS



The exclamation point within an equilateral triangle is intended to alert the service personnel to important safety information in the service literature.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the service personnel to the presence of noninsulated "dangerous voltage" that may be of sufficient magnitude to constitute a risk of electric shock.



The pictorial representation of a fuse and its rating within an equilateral triangle is intended to convey to the service personnel the following fuse replacement caution notice:

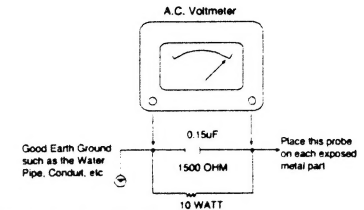
CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

SERVICE INFORMATION

While servicing, use an isolation transformer for protection from AC line shock. After the original service problem has been corrected, make a check of the following:

FIRE AND SHOCK HAZARD

1. Be sure that all components are positioned to avoid a possibility of adjacent component shorts. This is especially important on items transported to and from the repair shop.
2. Verify that all protective devices such as insulators, barriers, covers, shields, strain reliefs, power supply cords, and other hardware have been reinstalled per the original design. Be sure that the safety purpose of the polarized line plug has not been defeated.
3. Soldering must be inspected to discover possible cold solder joints, solder splashes, or sharp solder points. Be certain to remove all loose foreign particles.
4. Check for physical evidence of damage or deterioration to parts and components, for frayed leads or damaged insulation (including the AC cord), and replace if necessary.
5. No lead or component should touch a high current device or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.
6. After reassembly of the set, always perform an AC leakage test on all exposed metallic parts of the cabinet (the channel selector knobs, antenna terminals, handle and screws) to be sure that set is safe to operate without danger of electrical shock. **DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST.** Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm, 10 watt resistor, paralleled by a .15 mfd 150V AC type capacitor between a known good earth ground water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and .15 mfd capacitor. Reverse the AC plug by using a non-polarized adaptor and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts RMS. This corresponds to 0.5 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



TIPS ON PROPER INSTALLATION

1. Never install any receiver in a closed-in recess, cubbyhole, or closely fitting shelf space over, or close to, a heat duct, or in the path of heated air flow.
2. Avoid conditions of high humidity such as: outdoor patio installations where dew is a factor, near steam radiators where steam leakage is a factor, etc.
3. Avoid placement where draperies may obstruct venting. The customer should also avoid the use of decorative scarves or other coverings that might obstruct ventilation.
4. Wall- and shelf-mounted installations using a commercial mounting kit must follow the factory-approved mounting instructions. A product mounted to a shelf or platform must retain its original feet (or the equivalent thickness in spacers) to provide adequate air flow across the bottom. Bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage tests on customized installations.
5. Caution customers against mounting a product on a sloping shelf or in a tilted position, unless the receiver is properly secured.
6. A product on a roll-about cart should be stable in its mounting to the cart. Caution the customer on the hazards of trying to roll a cart with small casters across thresholds or deep pile carpets.
7. Caution customers against using extension cords. Explain that a forest of extensions, sprouting from a single outlet, can lead to disastrous consequences to home and family.

SERVICING PRECAUTIONS

CAUTION: Before servicing the VCR + DVD RECORDER covered by this service data and its supplements and addends, read and follow the **SAFETY PRECAUTIONS**. NOTE: if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publications, always follow the safety precautions.

Remember Safety First:

General Servicing Precautions

1. Always unplug the VCR + DVD RECORDER AC power cord from the AC power source before:

- (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
- (2) Disconnecting or reconnecting any internal electrical plug or other electrical connection.
- (3) Connecting a test substitute in parallel with an electrolytic capacitor.

Caution: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Do not spray chemicals on or near this VCR + DVD RECORDER or any of its assemblies.

3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cotton-tipped swab, or comparable soft applicator. Unless specified otherwise in this service data, lubrication of contacts is not required.

4. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.

5. Do not apply AC power to this VCR + DVD RECORDER and / or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.

6. Always connect the test instrument ground lead to an appropriate ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter (500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1M-ohm.

Note 1: Accessible Conductive Parts include Metal panels, input terminals, Earphone jacks, etc.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor chip components.

The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.

4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.

5. Do not use freon-propelled chemicals. These can generate an electrical charge sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).

7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

Caution: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Normally harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

INFORMATION ABOUT LEAD-FREE SOLDERING

Philips CE is producing lead-free sets from 1.1.2005 onwards.

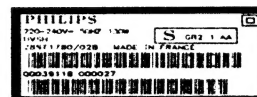
IDENTIFICATION:

Regardless of special logo (not always indicated)



one must treat all sets from 1 Jan 2005 onwards, according next rules:

Example S/N:



Bottom line of typeplate gives a 14-digit S/N. Digit 5&6 is the year, digit 7&8 is the week number, so in this case 1991 wk 18

So from 0501 onwards = from 1 Jan 2005 onwards

Important note: In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (lead-free / lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
 - * To reach at least a solder-temperature of 400°C,
 - * To stabilize the adjusted temperature at the solder-tip
 - * To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C – 380°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free). If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.
- **Special information for BGA-ICs:**
 - always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)
 - lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website.

Do not re-use BGAs at all.

• For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.

• On our website www.atyourservice.ce.Philips.com you find more information to:

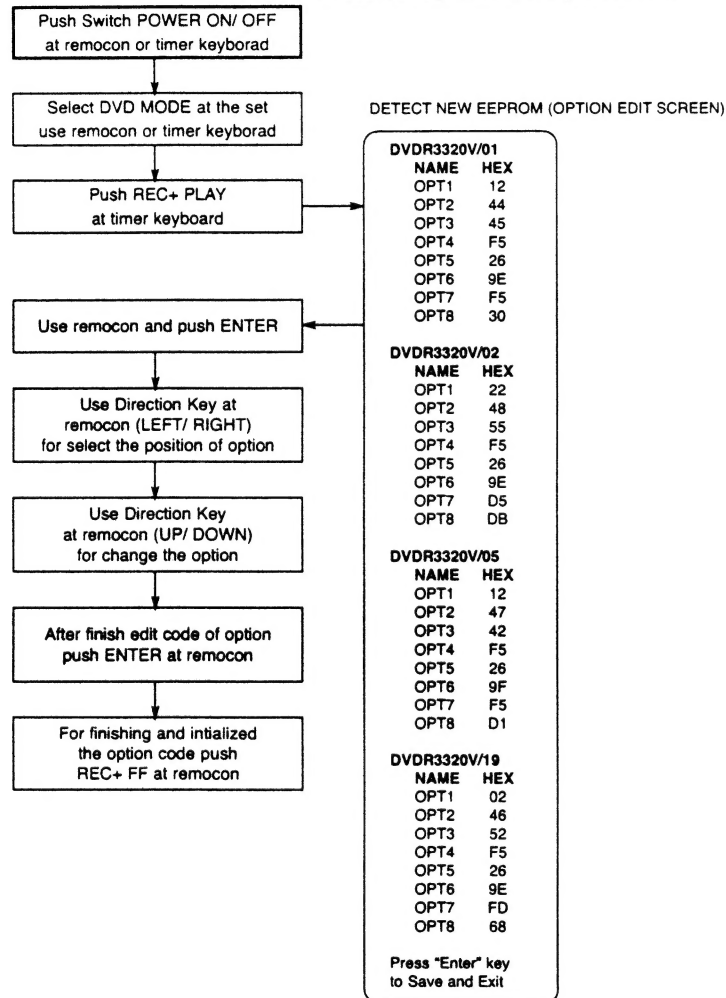
- * BGA-de/soldering (+ baking instructions)
- * Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the "magazine", chapter "workshop news".

For additional questions please contact your local repair-helpdesk.

THE STEPS FOR CHANGE THE OPTION CODE

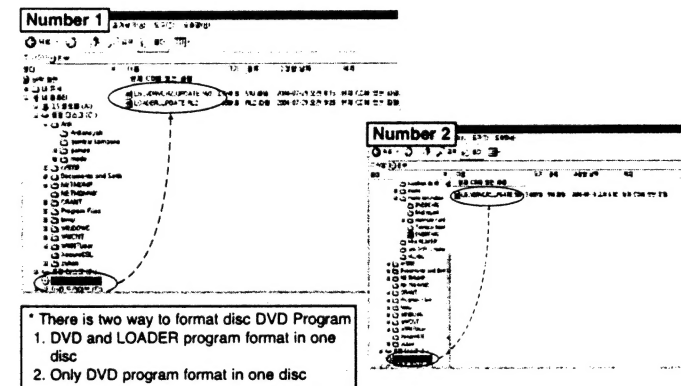
Note : This procedure must be done when IC304(On digital Board) or Digital Boardassy



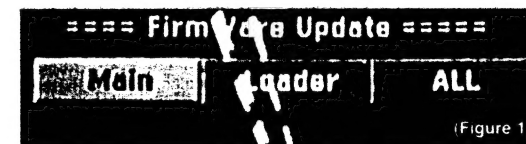
UP-DATING PROGRAM

BURNING DISC

- For up-dating the DVD program using the disc, it must burning the disc which include the DVD software.
- For recorder combi set which using the disc downloader program are DVD Program and Loader Program.
- In 2nd generation for recorder combi can download the DVD program and Loader program one by one, or all together.



- If you format like number 1 you'll see capture like (figure 1)
- And you have three choice:
1. Main. It's mean if you chose this it'll up-dating only DVD program.
2. Loader. It's mean if you chose this it'll up-dating only Loader program.
3. ALL. It's mean if you chose this it'll up-dating DVD and Loader program.

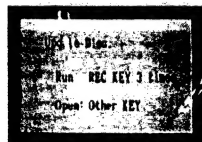


- If you format like number 2 you'll not see capture like figure 1 that give you choices, you have no choice only update DVD program

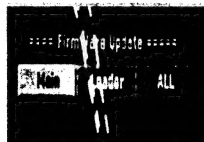
DVD UPGRADE INSTRUCTION

FORMAT NO 1

1. Press POWER KEY to turn on.
2. After booting, insert the upgrade disc, and you will see message like [FIGURE 1]
3. Press "REC" key (front or remote) 3 times and you will see as [FIGURE 2] with remote Chose one of them then Press enter
4. For update both of them [MAIN & LOADER] we chose "ALL" and first you will see [FIGURE 3] DVD update
→ Check the "Current Version" and "New CD Write Version" and press "REC" key.
5. The DVD update will be on progress. And when finish update MAIN Version it's automatically continue to Update Loader Version and You will see [FIGURE 4]
→ Check the "Current Version" and "New CD Write Version " and Press "REC" key once more
6. The LOADER update will be on progress. And tray will open.
7. Remove the disc and wait until finish
8. The tray will be close and open automatically after completing "UNDER UPDATE" 100%
9. Turn off the unit
10. Turn on again the unit is operation with new software



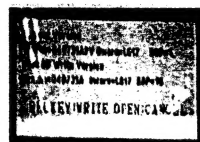
[FIGURE 1]



[FIGURE 2]



[FIGURE 3]



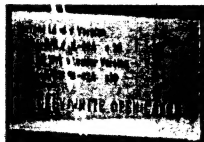
[FIGURE 4]

FORMAT NO 2

1. Press POWER KEY to turn on.
2. After booting, insert the upgrade disc, and you will see message like [FIGURE 1]
3. Press "REC" key (front or remote) 3 times
4. The DVD update will be on progress.
→ Check the "Current Version" and "New CD Write Version " and Press "REC" key once more
5. The tray will be open automatically after completing "UNDER UPDATE" 100%
6. Remove the disc and Turn off the unit
7. Turn on again the unit is operation with new software



[FIGURE 1]



[FIGURE 2]

SPECIFICATIONS

General

Power requirements	AC 220-230V, 50 Hz
Power consumption	35W
Dimensions (approx.)	430 X 78.5 X 354 mm (w x h x d)
Mass (approx.)	5.7 kg
Operating temperature	5°C to 35°C
Operating humidity	5 % to 90 %
Television system	PAL B/G, PAL I/I, SECAM D/K color system
Recording format	PAL

System

Laser	Semiconductor laser, wavelength 650 nm
Video head system	Double azimuth 4 heads, helical scanning
Signal system	PAL

Recording

Recording format	DVD+RW/+R Video format
Recordable discs	DVD-ReWritable, DVD-Recordable, DVD+ReWritable, DVD+Recordable
Recordable time	Approx. 1 hour (XP mode), 2 hours (SP mode), 4 hours (LP mode), 6 hours (EP mode)

Video recording format

Sampling frequency	27MHz
Compression format	MPEG 2

Audio recording format

Sampling frequency	48kHz
Compression format	Dolby Digital

Playback

Frequency response	DVD (PCM 48 kHz): 8 Hz to 22 kHz, CD: 8 Hz to 20 kHz DVD (PCM 96 kHz): 8 Hz to 44 kHz
--------------------	--

Harmonic distortion

Dynamic range	Less than 0.008% (AUDIO OUT connector) More than 95 dB (AUDIO OUT connector)
---------------	---

Inputs

AERIAL IN	Aerial input, 75 ohms
VIDEO IN	1.0 Vp-p 75 ohms, sync negative, RCA jack x 1 / SCART x 2
AUDIO IN	0 dBm more than 47 kohms, RCA jack (L, R) x 1 / SCART x 2
DV IN	4 pin (i.LINK/IEEE 1394 standard)
S-VIDEO IN	(Y) 1.0 V (p-p), 75 Ω, negative sync, Mini DIN 4-pin x 1 (C) 0.3 V (p-p) 75 Ω

Outputs

S-VIDEO OUT	(Y) 1.0 V (p-p), 75 Ω, negative sync, Mini DIN 4-pin x 1 (C) 0.3 V (p-p) 75 Ω
COMPONENT VIDEO OUT	(Y) 1.0 V (p-p), 75 Ω, negative sync, RCA jack x 1 (Pb)(Pr) 0.7 V (p-p), 75 Ω, RCA jack x 2
Audio output (digital audio)	0.5 V (p-p), 75 Ω, RCA jack x 1
Audio output (analog audio)	2.0 Vrms (1 KHz, 0 dB), 600 Ω, RCA jack (L, R) x 1 / SCART

* Design and specifications are subject to change without notice.

* Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories.

* DTS and DTS Digital Out are registered trademarks of Digital Theater Systems, Inc.

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EXPLODED VIEWS

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1. Cabinet and Main Frame Section

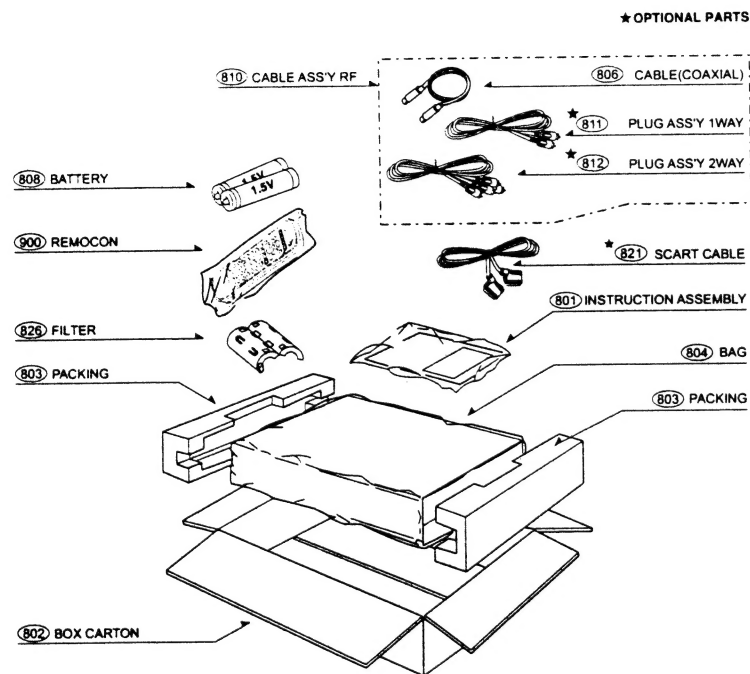


This exploded view diagram illustrates the assembly of a mechanical unit, likely a motor or actuator. The components are organized into several sub-assemblies, each enclosed in a dashed-line boundary:

- Top Left Sub-assembly (A001):** Includes parts 1001, 1002, 1003, and 1005. It features a circular component with a central hole.
- Top Right Sub-assembly (A000):** A complex assembly including parts 1025, 1027, 1029, 1030, 1032, 1033, 1038, 1042, 1043, 10432, 10433, 10434, and 1437. It shows a base plate with various mounting points and a central shaft assembly.
- Bottom Left Sub-assembly (A004):** Includes parts 1012, 1013, 1014, 1015, 1016, 1017, 1018A, 1018B, 1018C, 1018D, 1018E, 1019, 1020, 1024, 1026, 1035, 1036, 1039, 1040, 1041, 1042, 1043, 10434, and 10435. It shows a large rectangular frame with various internal components and a central shaft.
- Bottom Right Sub-assembly (A002):** Includes parts 1006, 1009, 1011, 1018, 1018A, 1018B, 1018C, 1018D, 1018E, 1019, 1020, 1024, 1026, 1035, 1036, 1039, 1040, 1041, 1042, 1043, 10434, and 10435. It shows a large rectangular frame with various internal components and a central shaft.

The diagram uses standard mechanical drawing conventions, with dashed lines indicating the assembly path and alignment of the parts. The components are labeled with numbers in circles, and the sub-assemblies are labeled with letters in circles.

3. Packing Accessory Section



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VCR PART

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VDR ELECTRICAL TROUBLESHOOTING

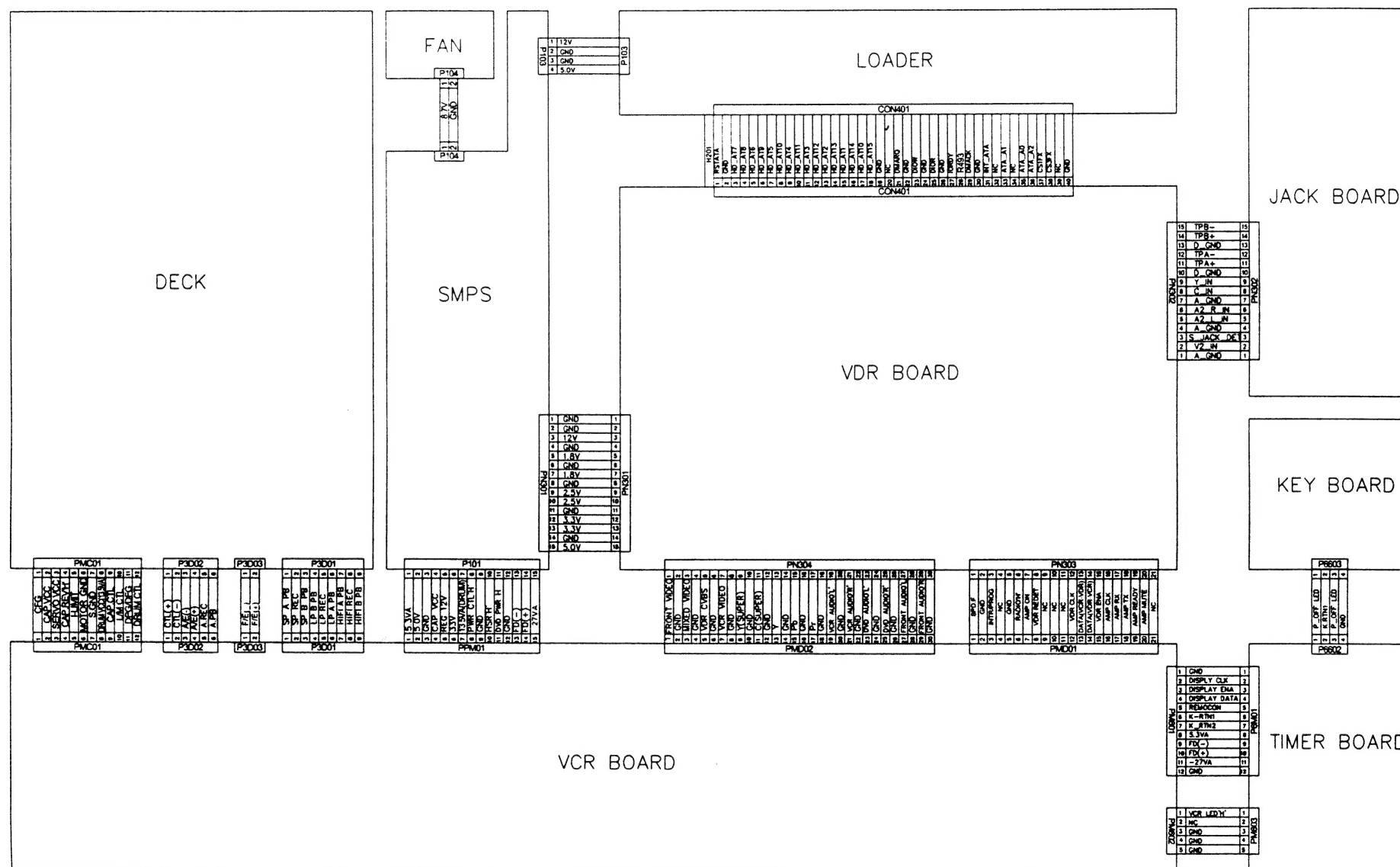
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OVERALL WIRING DIAGRAMS



VCR PART ELECTRICAL ADJUSTMENT PROCEDURES

1. Servo Adjustment

1) PG Adjustment

- Test Equipment
- a) OSCILLOSCOPE : PAL SP TEST TAPE

• Adjustment And Specification

MODE	MEASUREMENT POINT	ADJUSTMENT POINT	SPECIFICATION
PLAY	V.Out H/SW(TP)	R/C TRK JIG KEY	$6.5 \pm 0.5H$

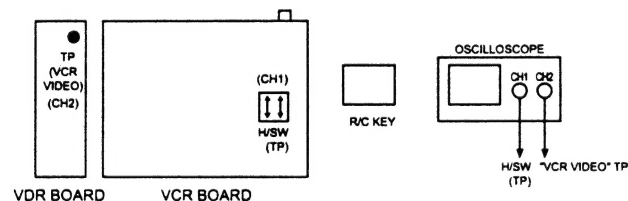
• Adjustment Procedure

- a) Insert the SP Test Tape and play.
- b) Connect the CH1 of the oscilloscope to the H/SW and CH2 to the "VCR VIDEO" TP for the VCR.
- c) Trigger the mixed Combo Video Signal of CH2 to the CH1 H/SW, and then check the distance (time difference), which is from the selected A(B) Head point of the H/SW signal to the starting point of the vertical synchronized signal, to $6.5H \pm 0.5H$ ($416\mu s$, $1H=64\mu s$).

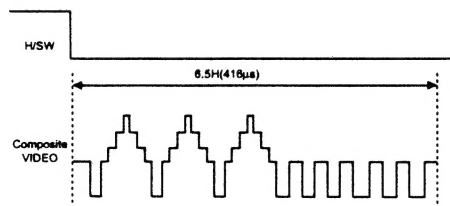
• PG Adjustment Method

- a-1) Playback the SP standard tape
- b-2) Wait for 3seconds with F/P "REC" key and "PLAY" key pressed at the same time. < Digitron[- -] >
- c-3) Repeat the above step(No.b-2), then it finishes the PG adjusting automatically. < Digitron[PG] >
- d-4) Stop the playback, then it goes out of PG adjusting mode after many the PG data.

• CONNECTION

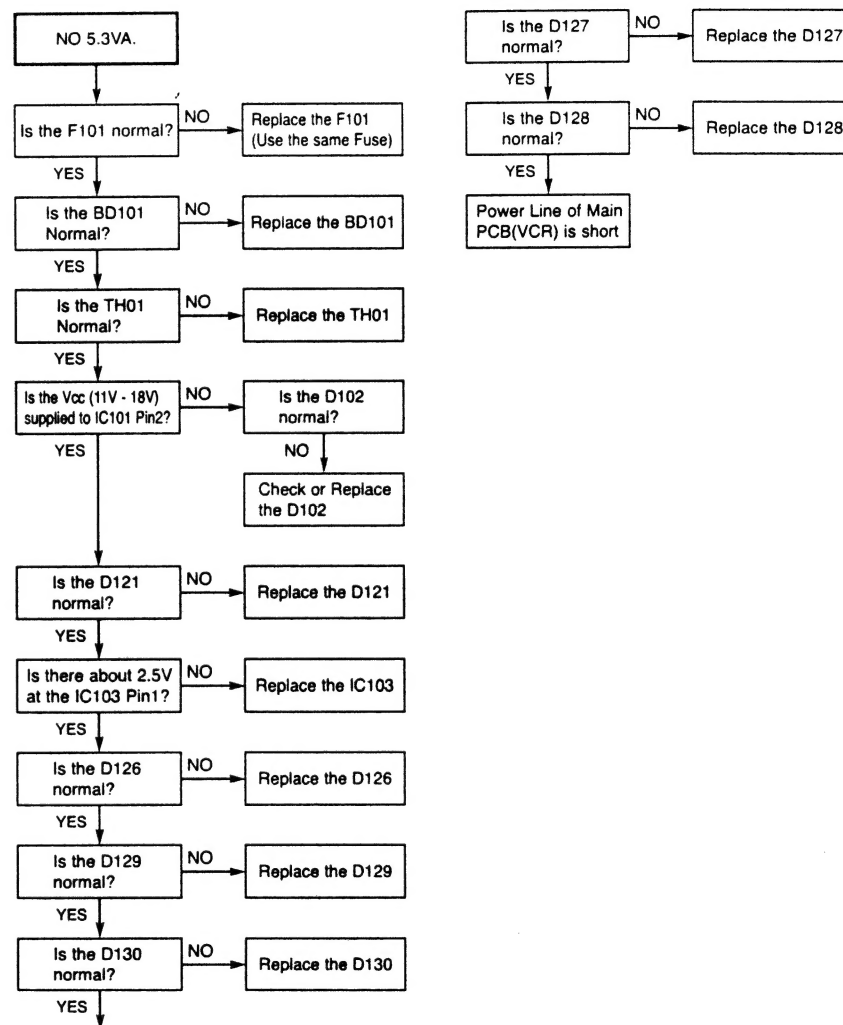


• WAVEFORM

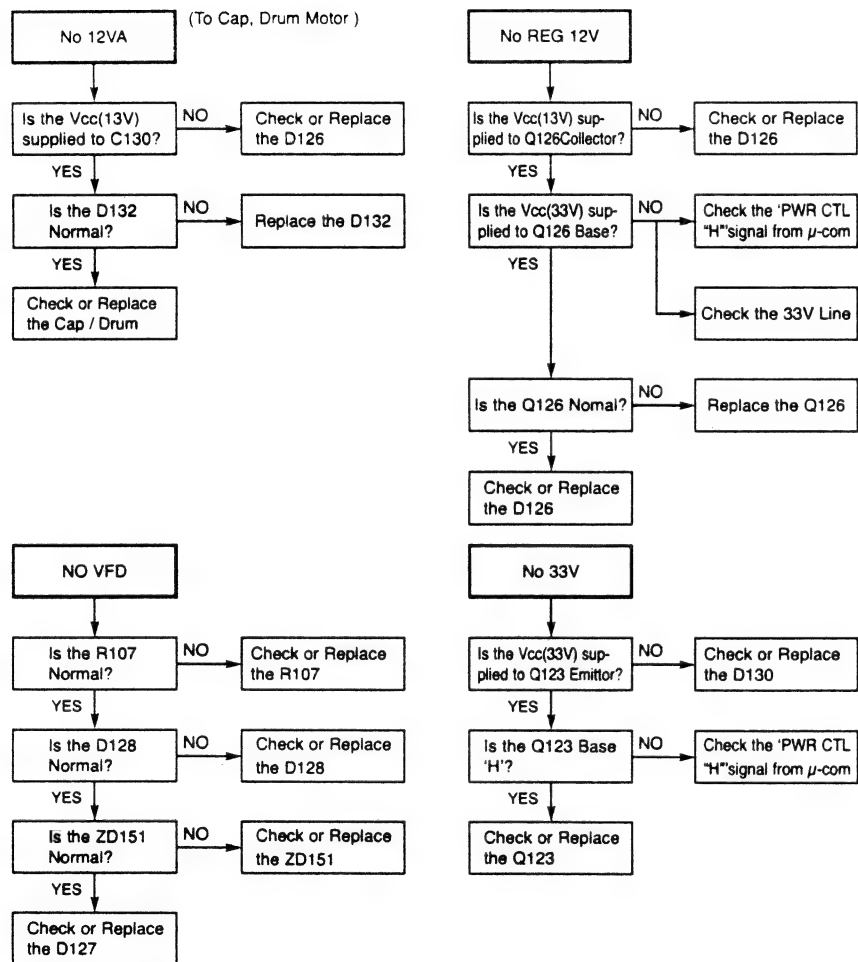


VCR ELECTRICAL TROUBLESHOOTING GUIDE

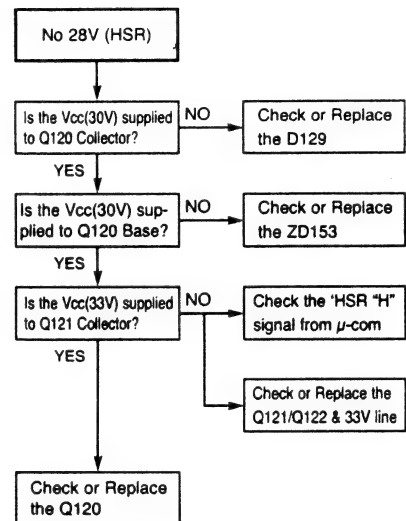
1. Power(SMPS) CIRCUIT



VCR ELECTRICAL TROUBLESHOOTING GUIDE



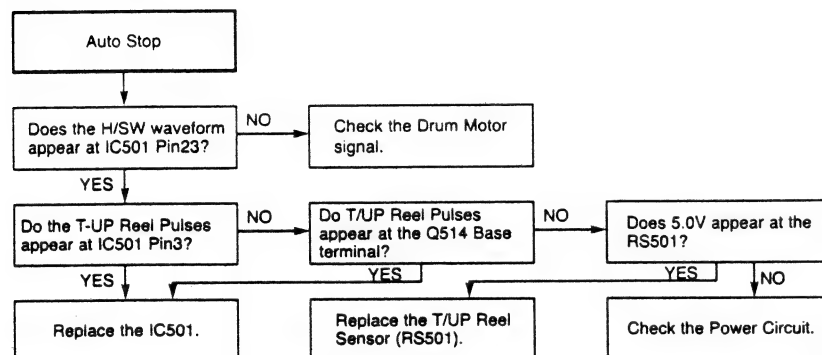
VCR ELECTRICAL TROUBLESHOOTING GUIDE



VCR ELECTRICAL TROUBLESHOOTING GUIDE

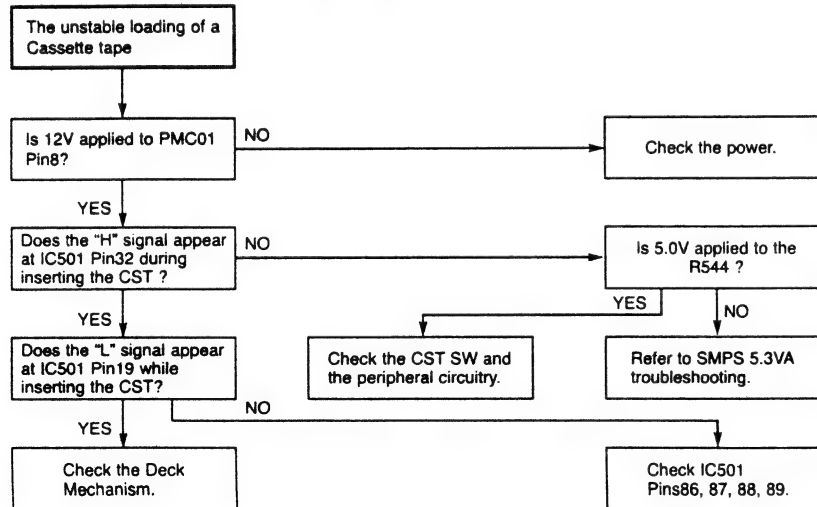
2. SYSTEM/KEY CIRCUIT

(1) AUTO STOP



Note : Auto stop can occur because Grease or Oil has dried up

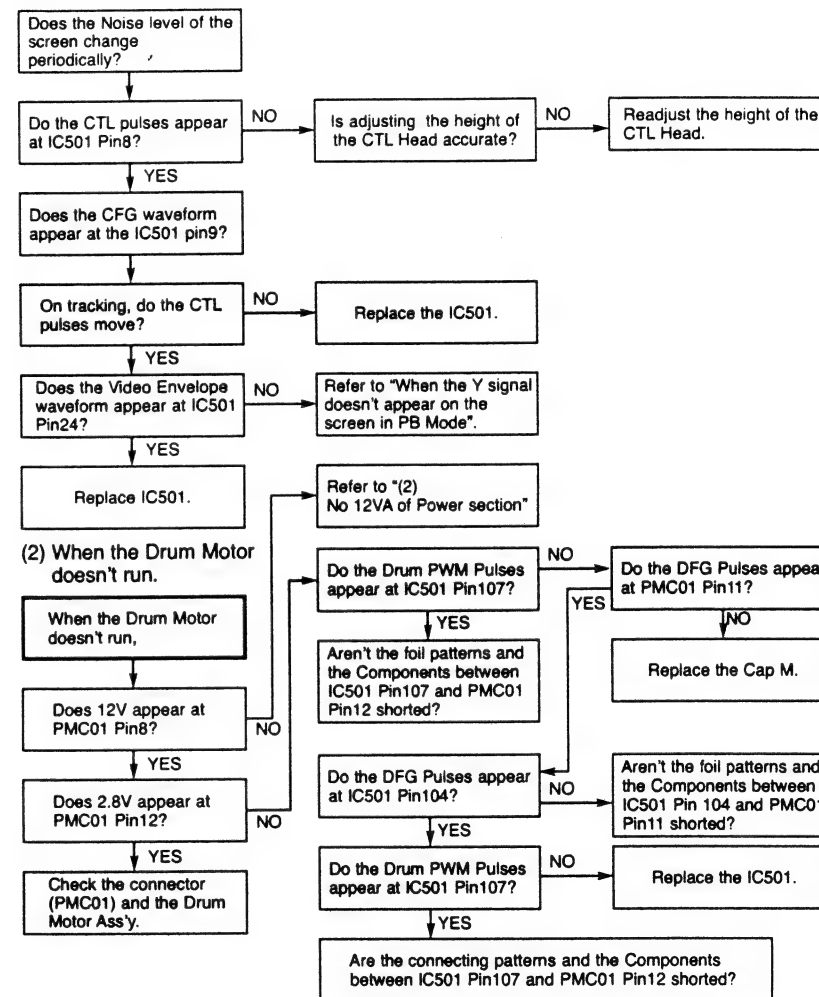
(2) The unstable loading of a Cassette tape



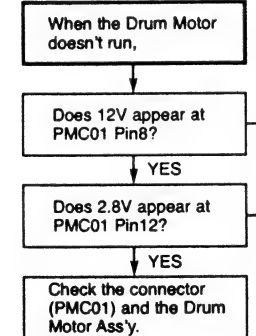
VCR ELECTRICAL TROUBLESHOOTING GUIDE

3. SERVO CIRCUIT

(1) Unstable Video in PB MODE

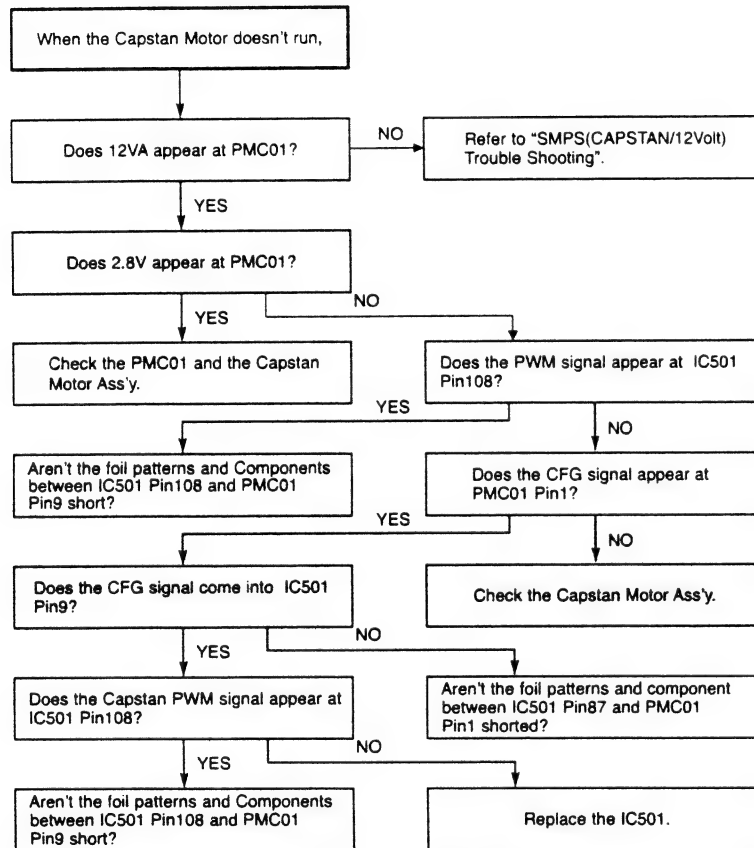


(2) When the Drum Motor doesn't run.



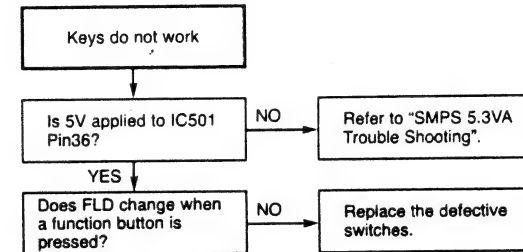
VCR ELECTRICAL TROUBLESHOOTING GUIDE

(3) When the Capstan Motor doesn't run,



VCR ELECTRICAL TROUBLESHOOTING GUIDE

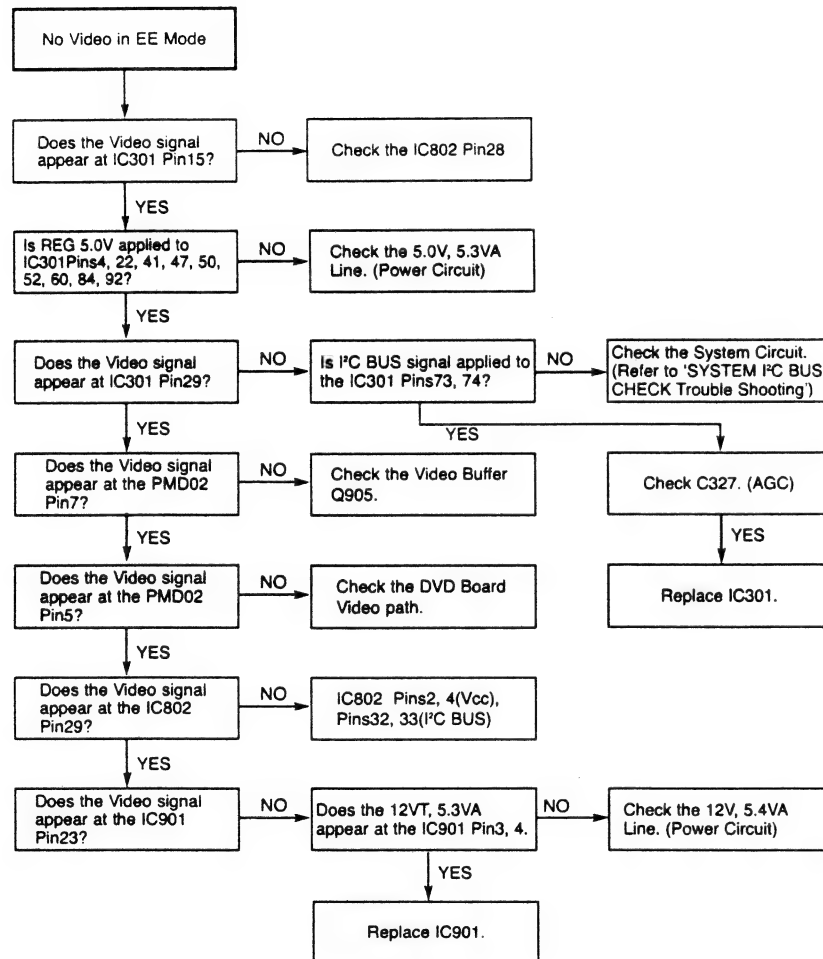
(4) Keys do not work



VCR ELECTRICAL TROUBLESHOOTING GUIDE

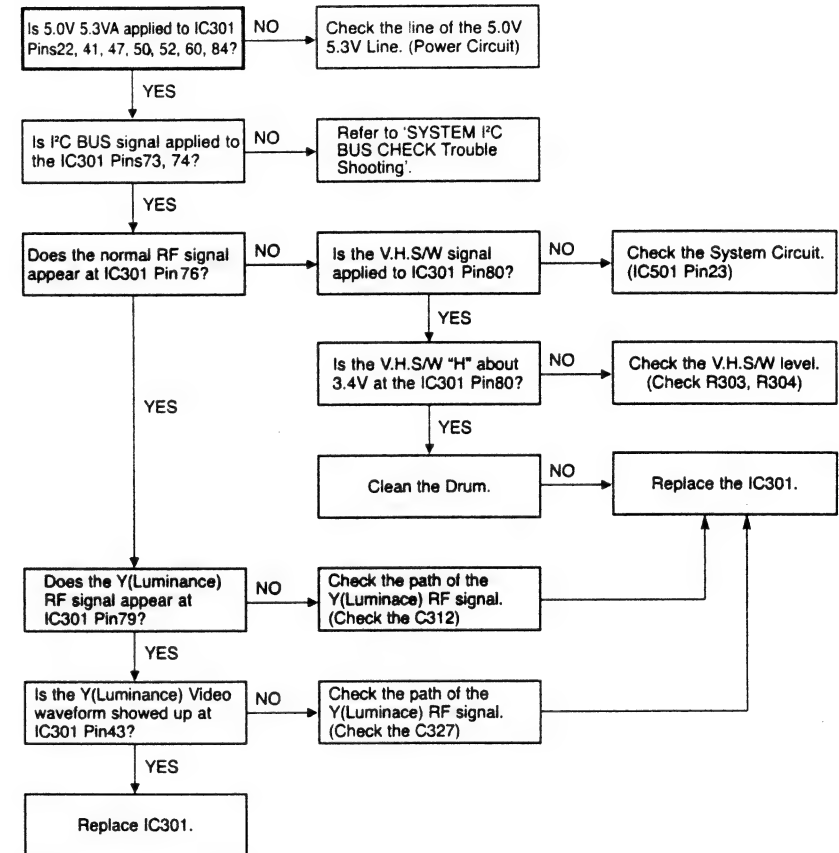
4. Y/C CIRCUIT

(1) No Video in EE Mode,



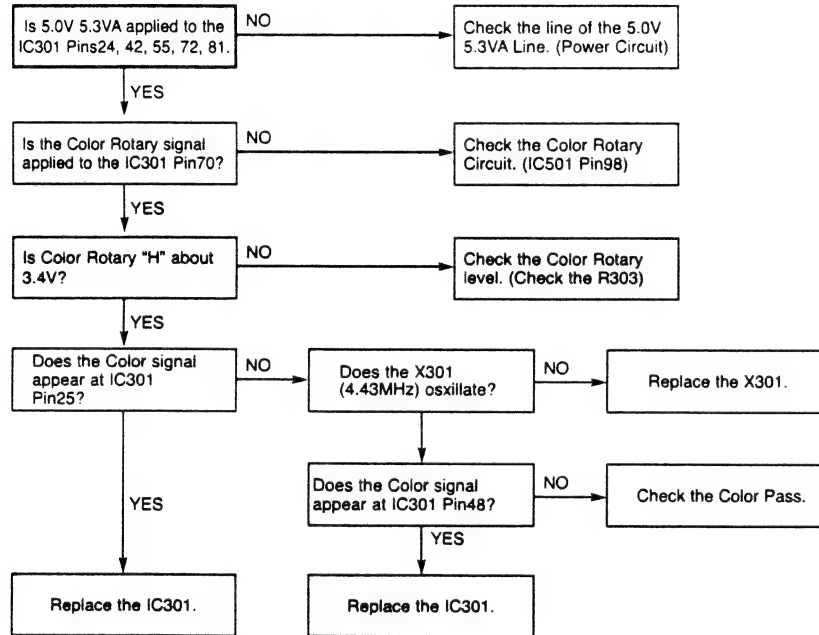
VCR ELECTRICAL TROUBLESHOOTING GUIDE

(2) When the Y(Luminance) signal doesn't appear on the screen in PB Mode,



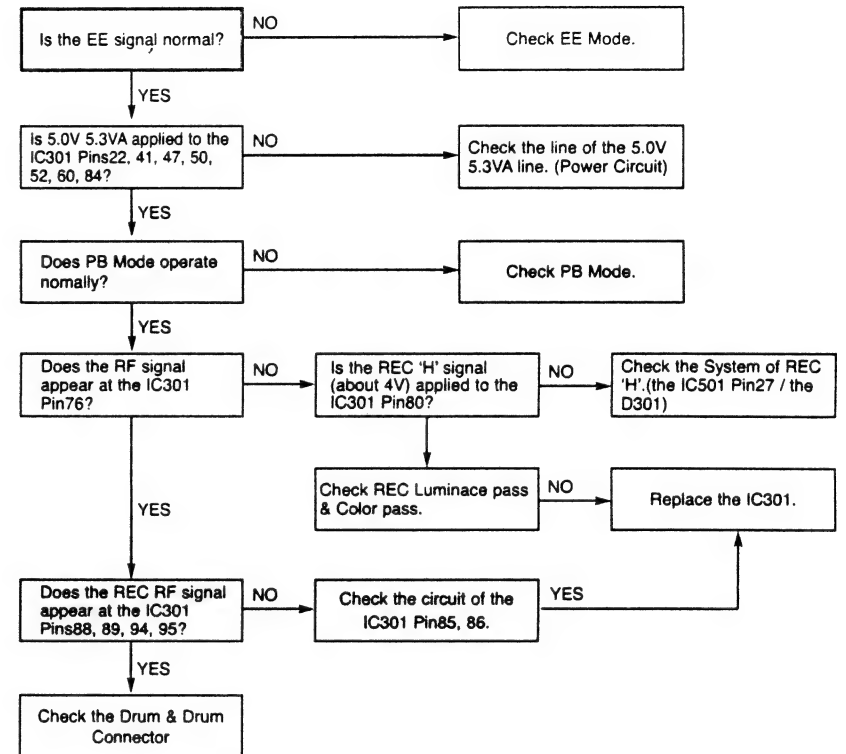
VCR ELECTRICAL TROUBLESHOOTING GUIDE

(3) When the C(Color) signal doesn't appear on the screen in PB Mode,



VCR ELECTRICAL TROUBLESHOOTING GUIDE

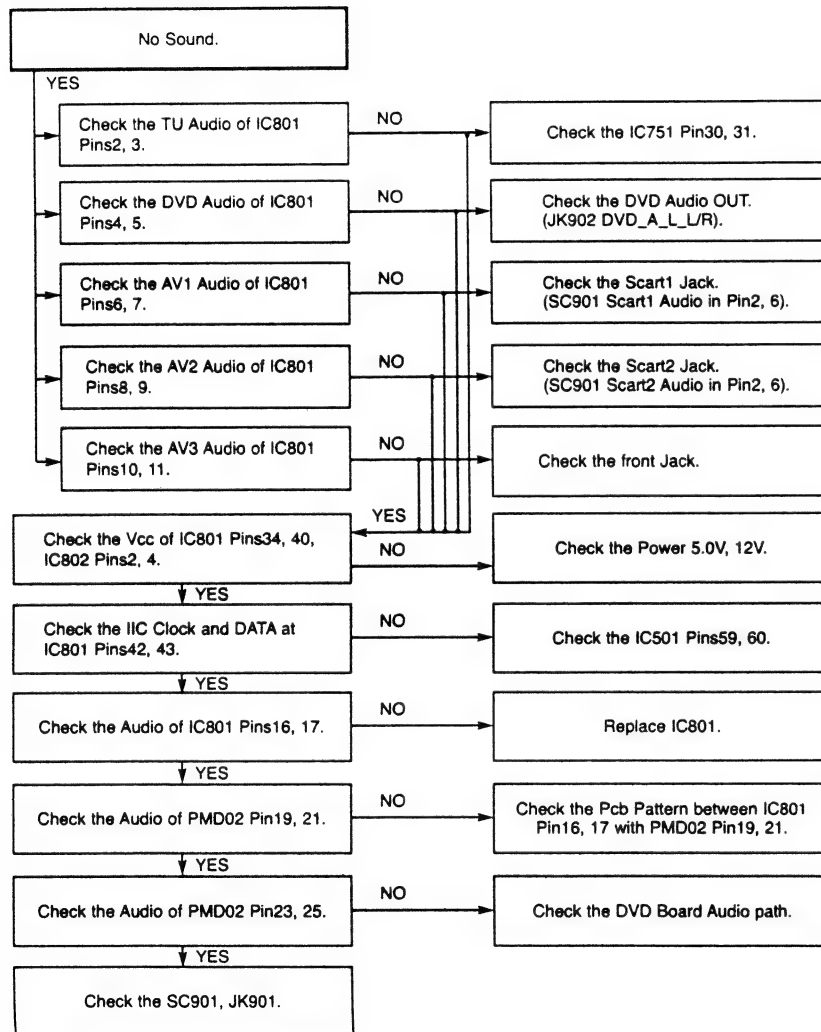
(4) When the Video signal doesn't appear on the screen in REC Mode,



VCR ELECTRICAL TROUBLESHOOTING GUIDE

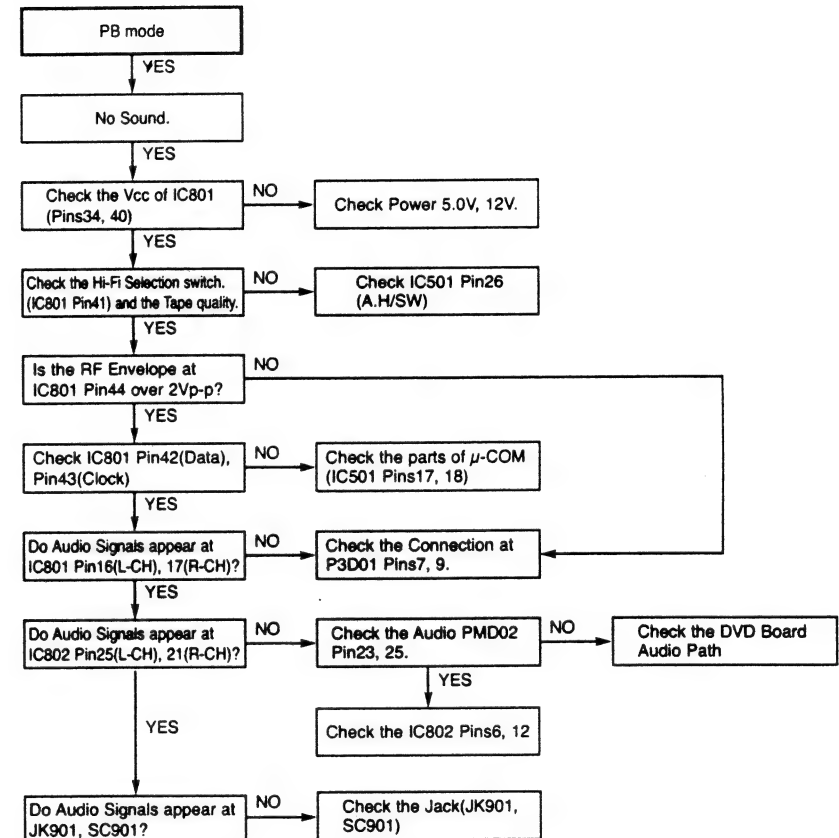
5. HI-FI CIRCUIT

(1) No Sound(EE Mode)



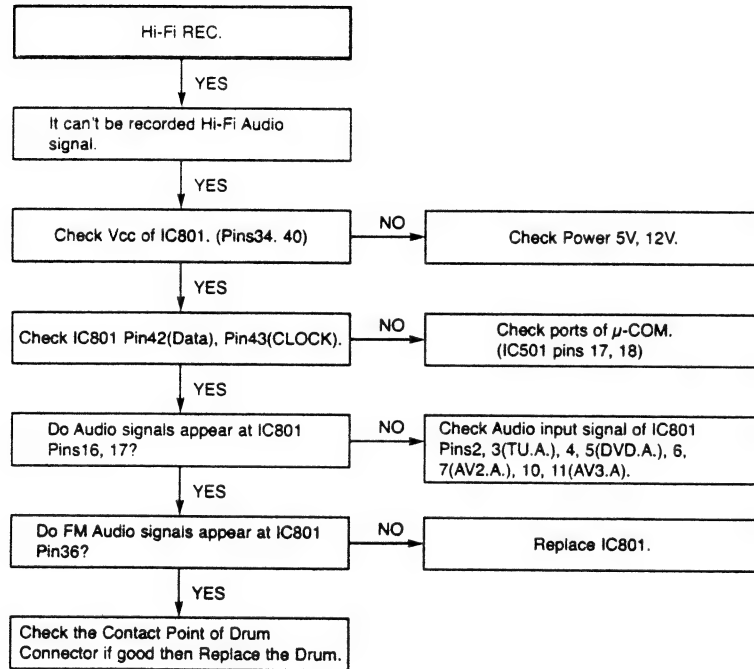
VCR ELECTRICAL TROUBLESHOOTING GUIDE

(2) Hi-Fi Playback



VCR ELECTRICAL TROUBLESHOOTING GUIDE

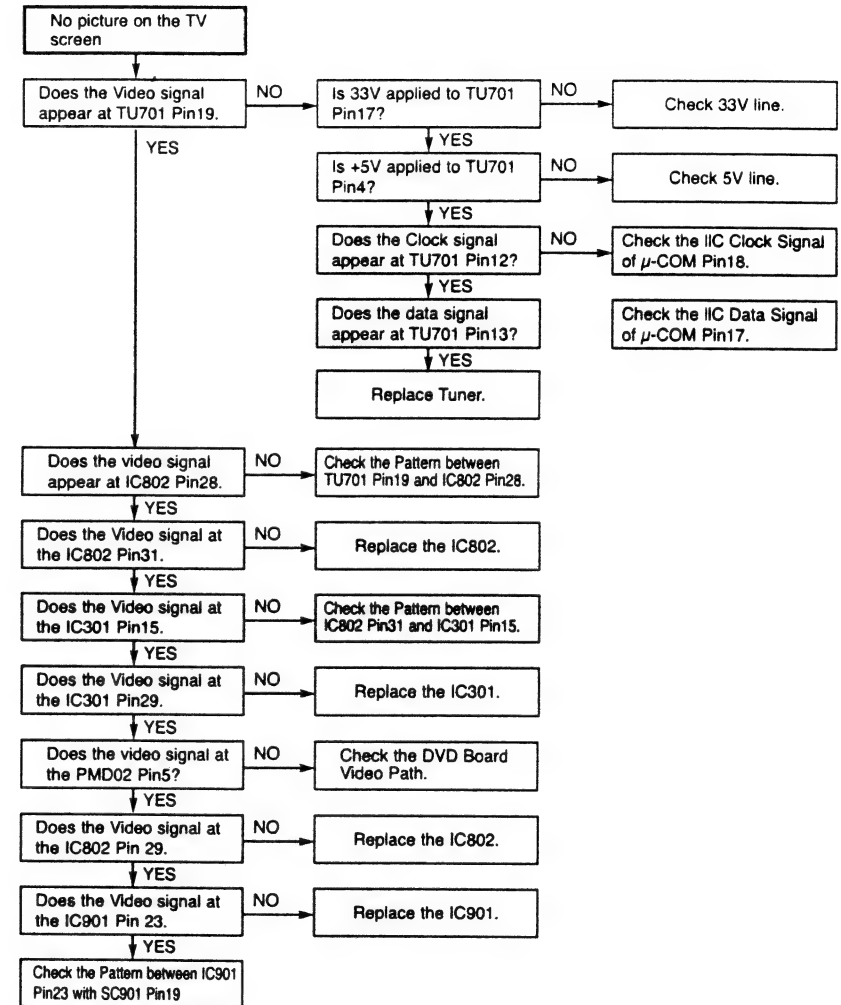
(3)



VCR ELECTRICAL TROUBLESHOOTING GUIDE

6. Tuner/IF CIRCUIT

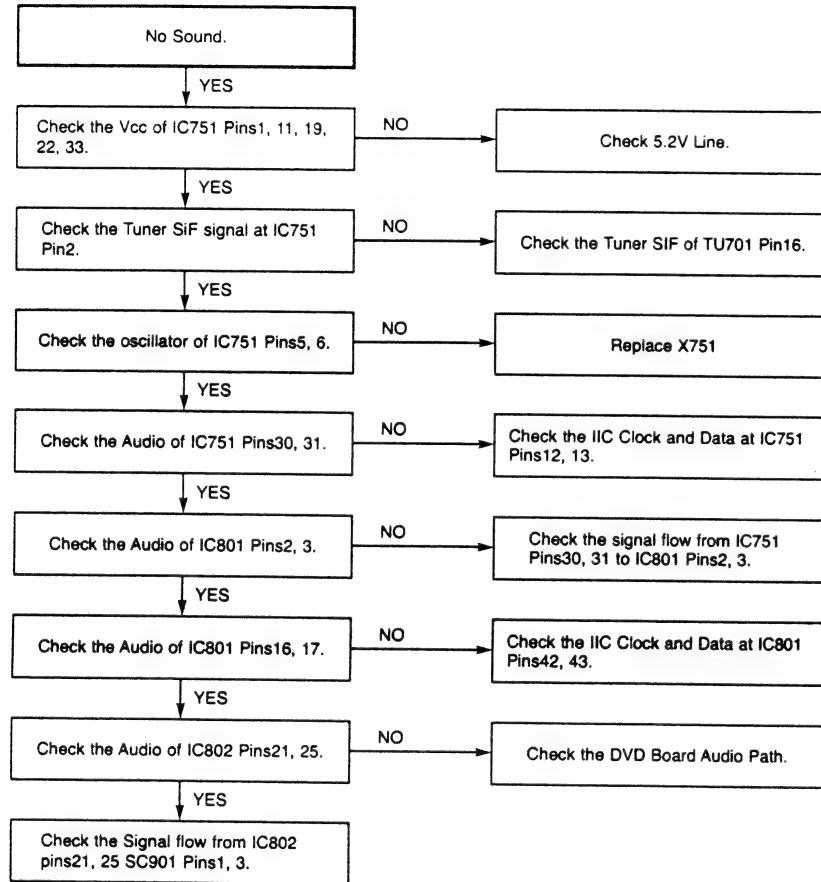
(1) No Picture on the TV screen



VCR ELECTRICAL TROUBLESHOOTING GUIDE

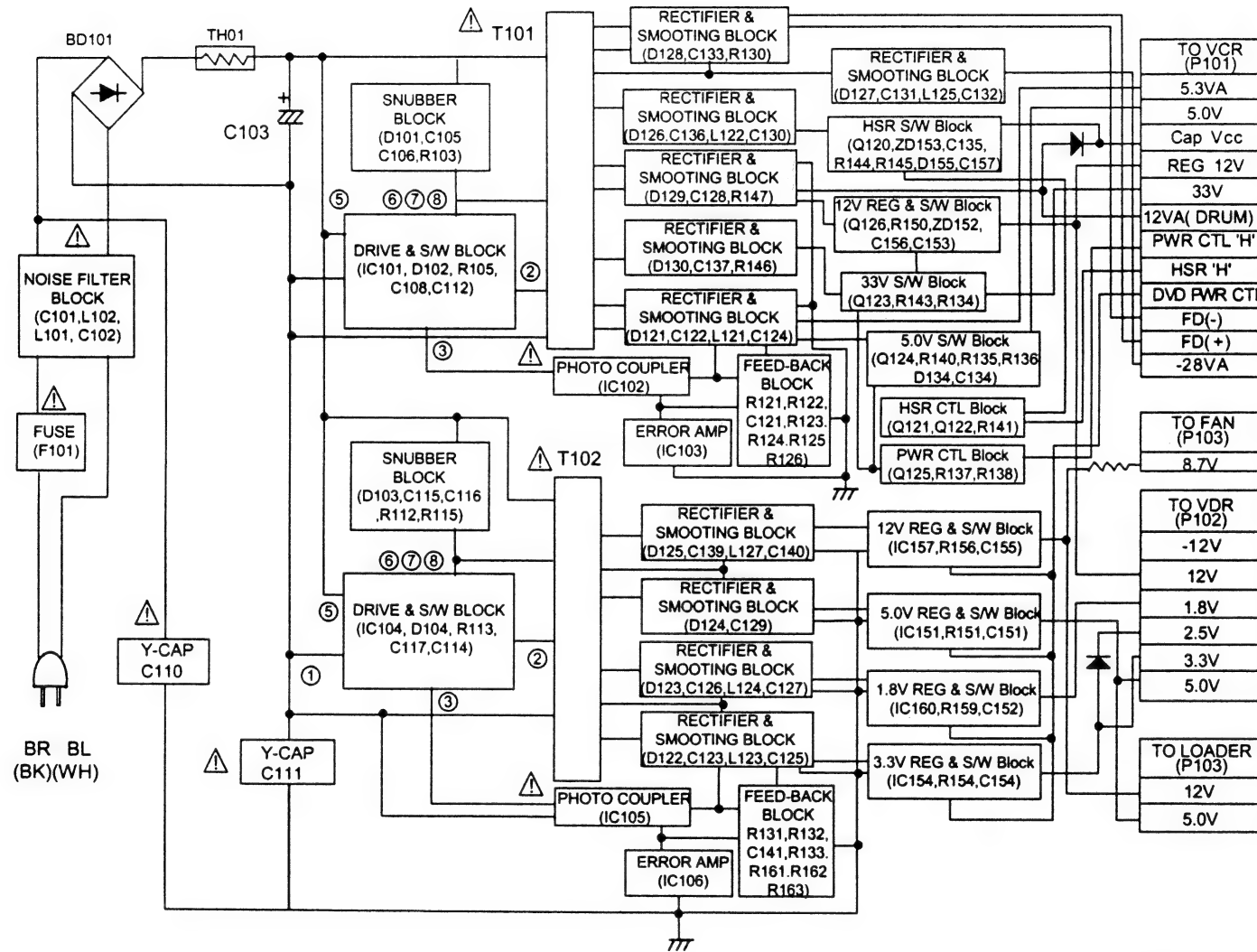
MEMO

(B) No Sound



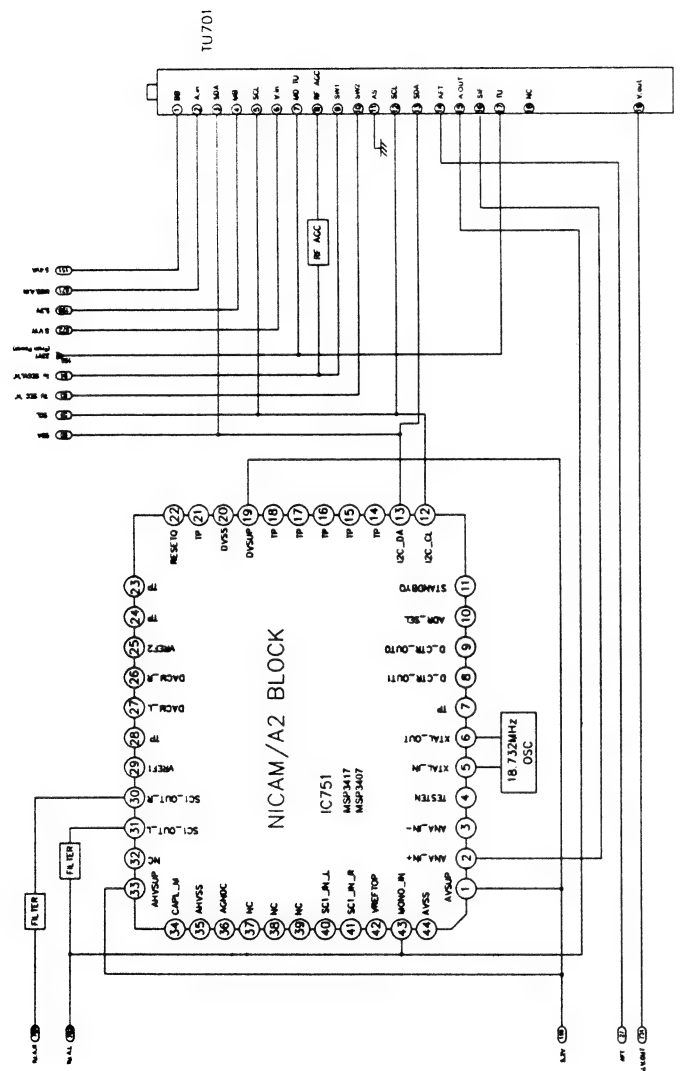
BLOCK DIAGRAMS

1. POWER(SMPS) BLOCK DIAGRAM

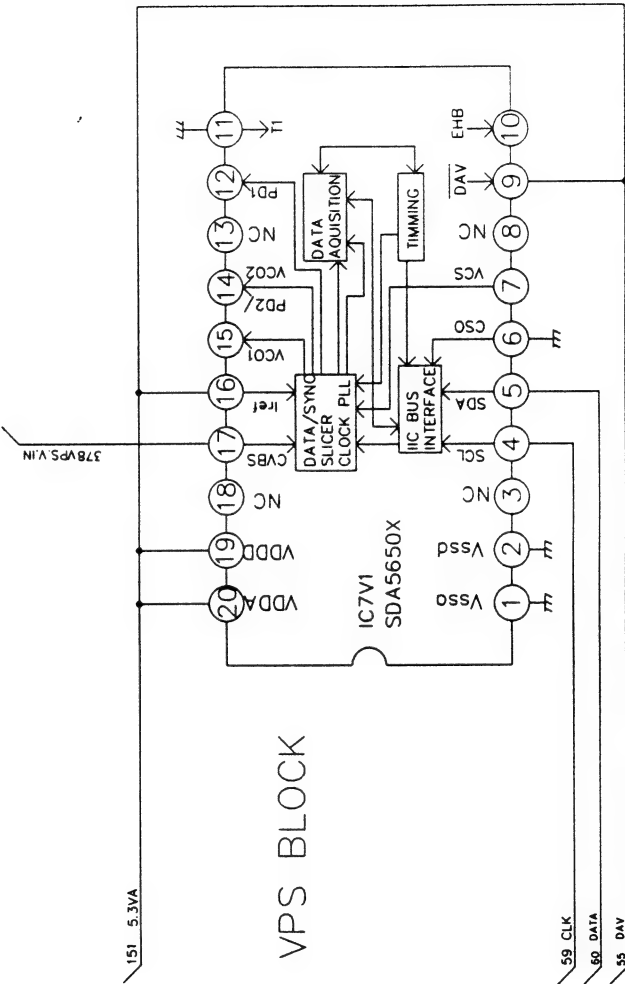


VCR+DVD REC SCART+RCA

2. TU/F, NICAM & A2 BLOCK DIAGRAM

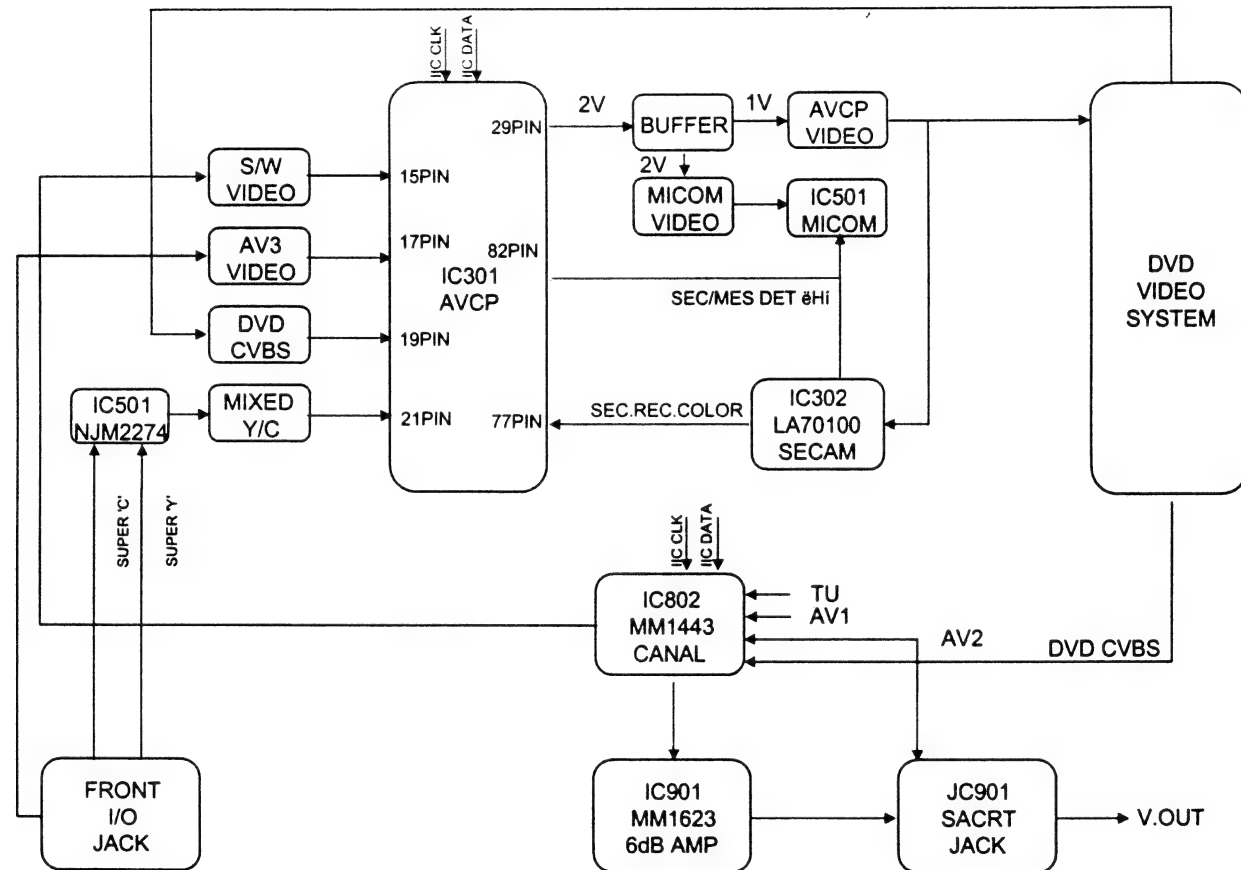


3. VPS BLOCK DIAGRAM

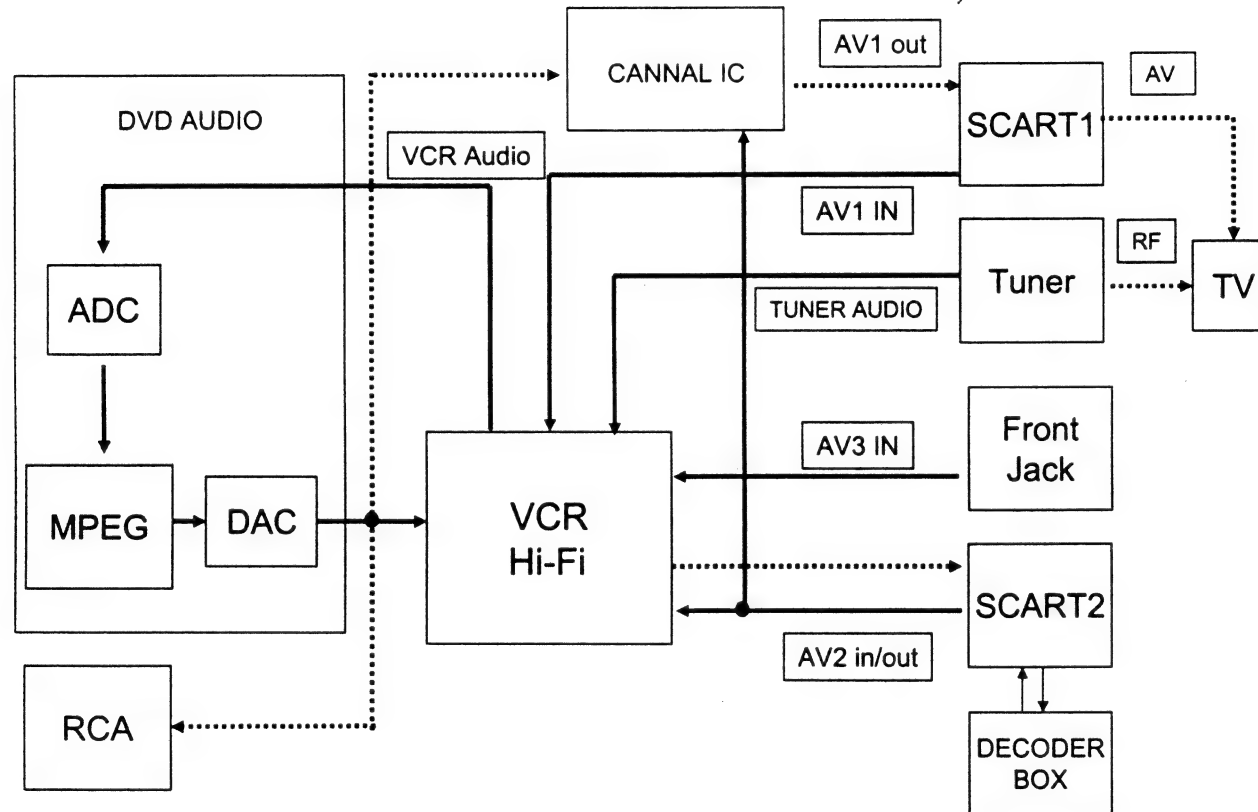


VCR+DVD REC SCART+RCA

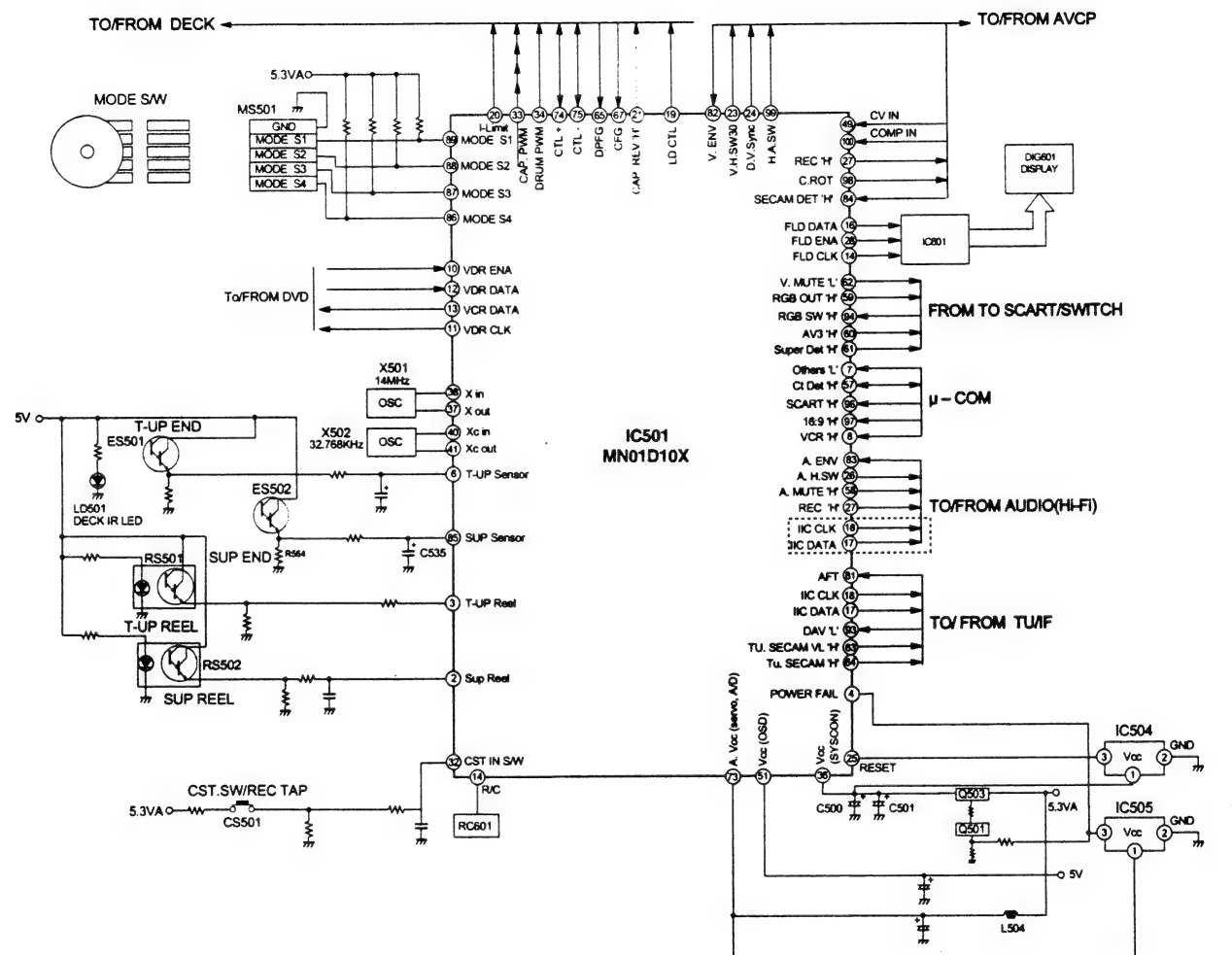
4. Y/C BLOCK DIAGRAM



5. Hi-Fi BLOCK DIAGRAM

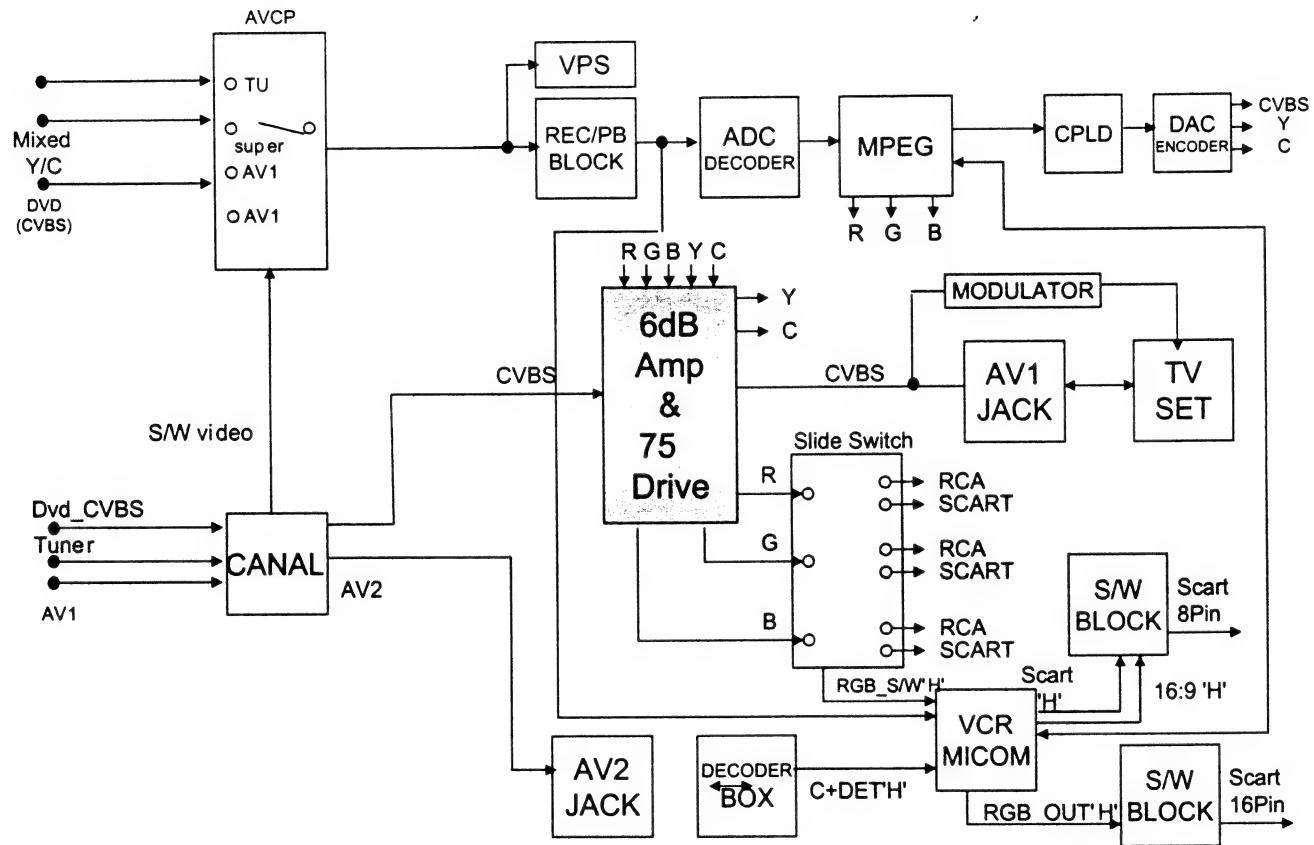


6. SYSTEM BLOCK DIAGRAM



VCR+DVD REC SCART+RCA

7. SCART & SWITCH BLOCK DIAGRAM



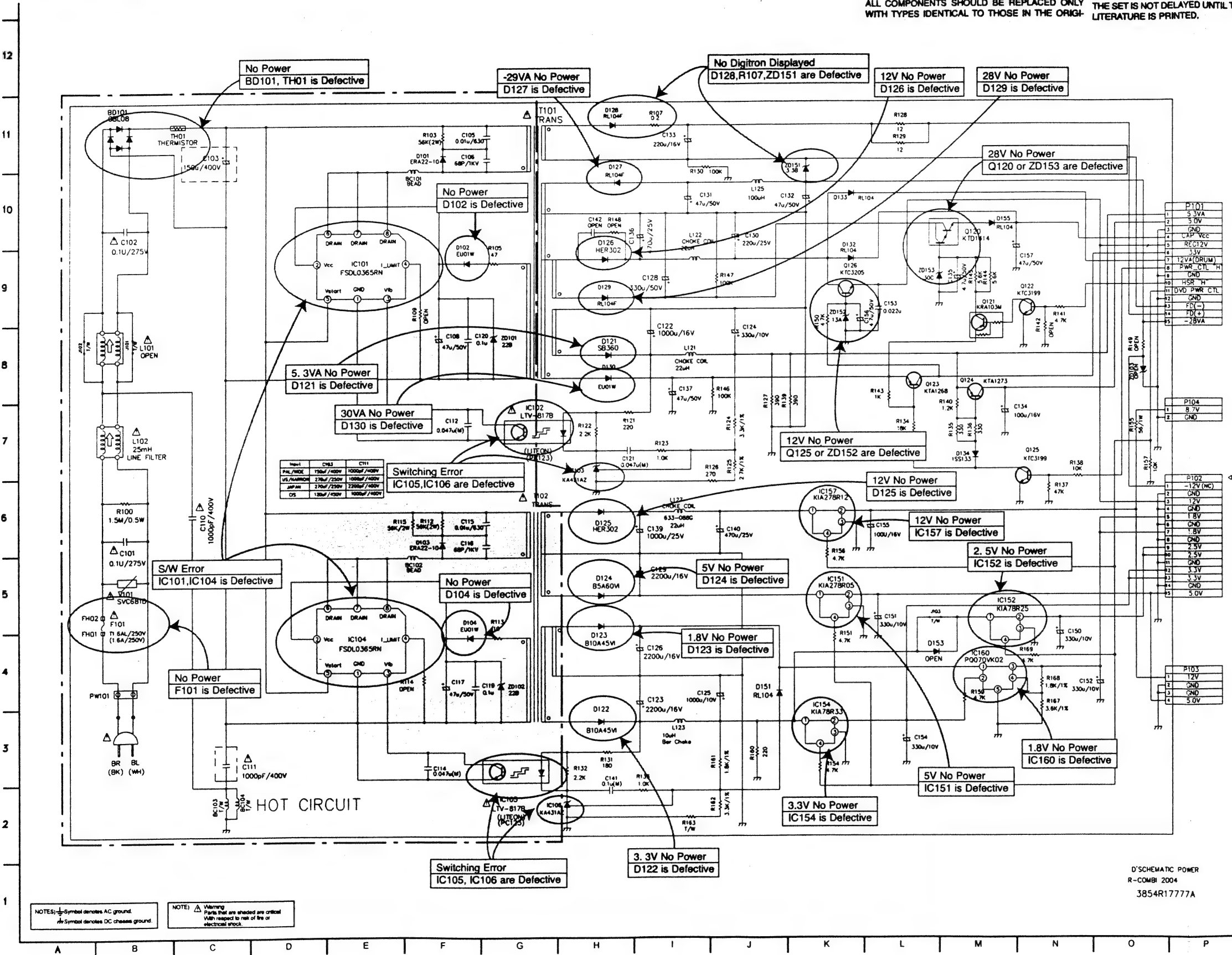
CIRCUIT DIAGRAMS

1. POWER(SMPS) CIRCUIT DIAGRAM

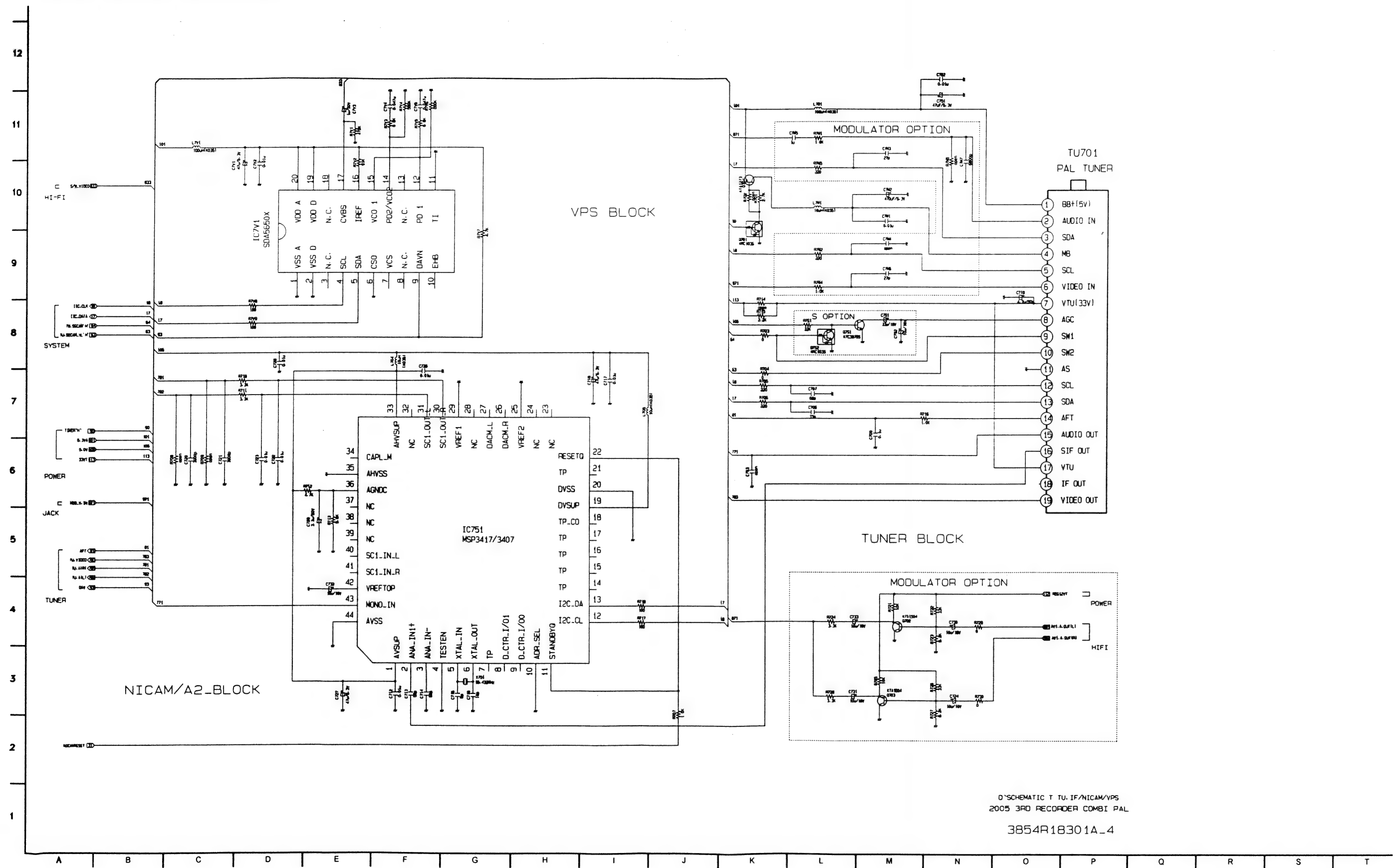
IMPORTANT SAFETY NOTICE

WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE PHILIPS ELECTRONICS CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT. SPECIAL COMPONENTS ARE SHADED ON THE SCHEMATIC FOR EASY IDENTIFICATION. THIS CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT USED. THIS WAY, IMPLEMENTATION OF THE LATEST SAFETY AND PERFORMANCE IMPROVEMENT CHANGES INTO THE SET IS NOT DELAYED UNTIL THE NEW SERVICE LITERATURE IS PRINTED.

NOTE :
1. Shaded (■) parts are critical for safety. Replace only with specified part number.
2. Voltages are DC-measured with a digital voltmeter during Play mode.



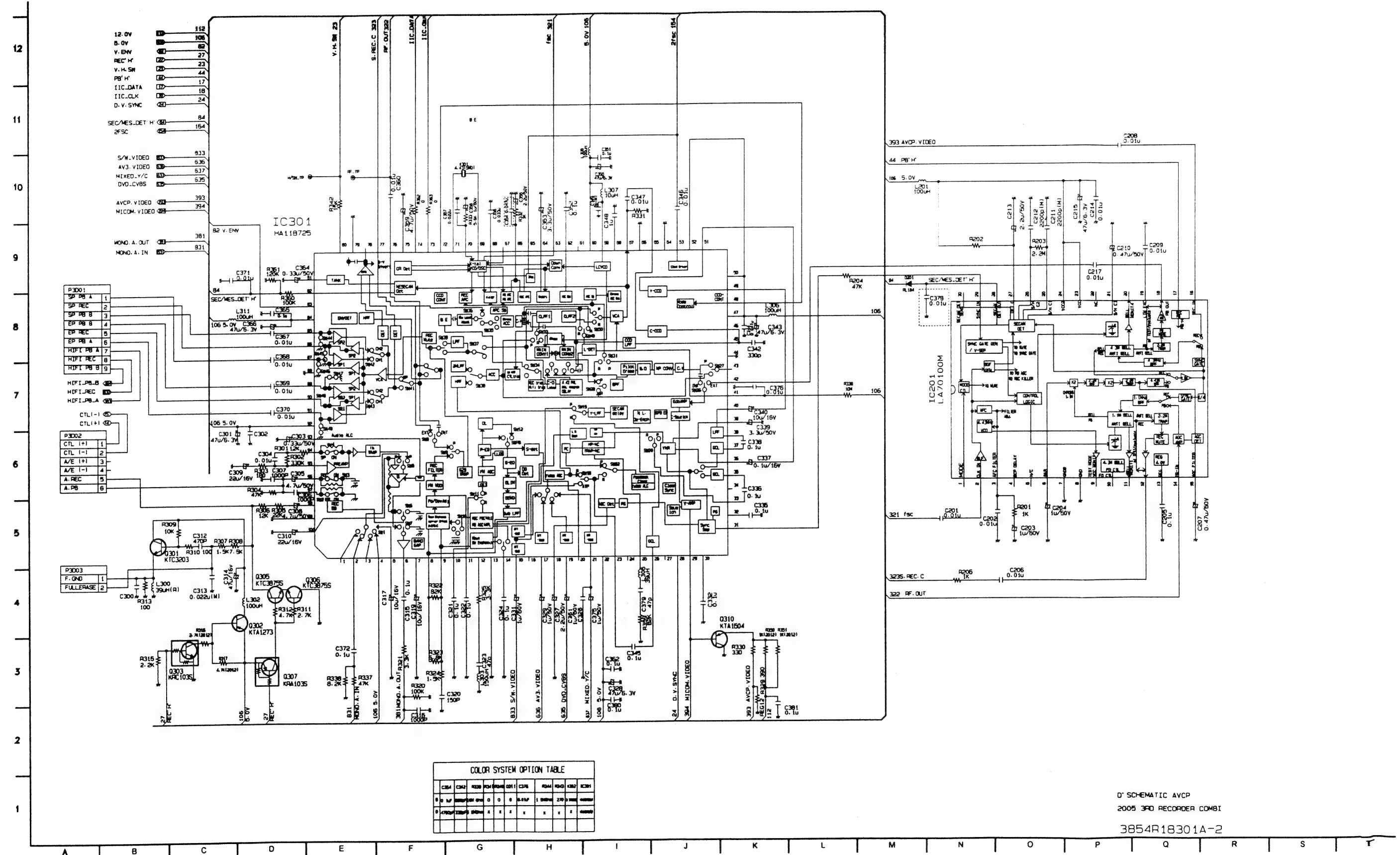
2. TUNER CIRCUIT DIAGRAM



D*SCHEMATIC T TU. IF/NICAM/VPS
2005 3RD RECORDER COMBI PAL

3854R18301A_4

3. A/V CIRCUIT DIAGRAM

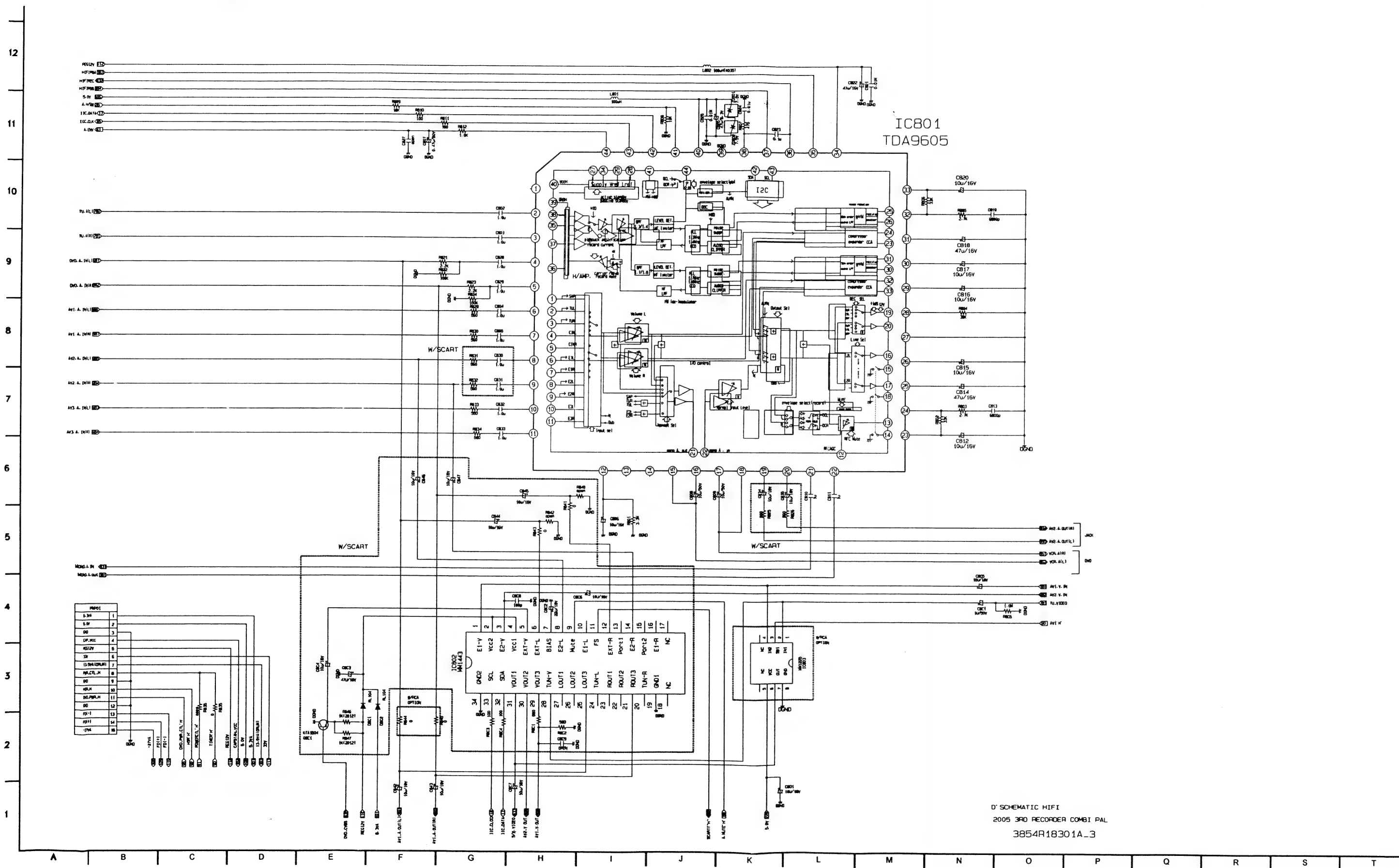


A vertical number line with tick marks and numbers from 1 to 12. The numbers are arranged vertically from bottom to top: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12.

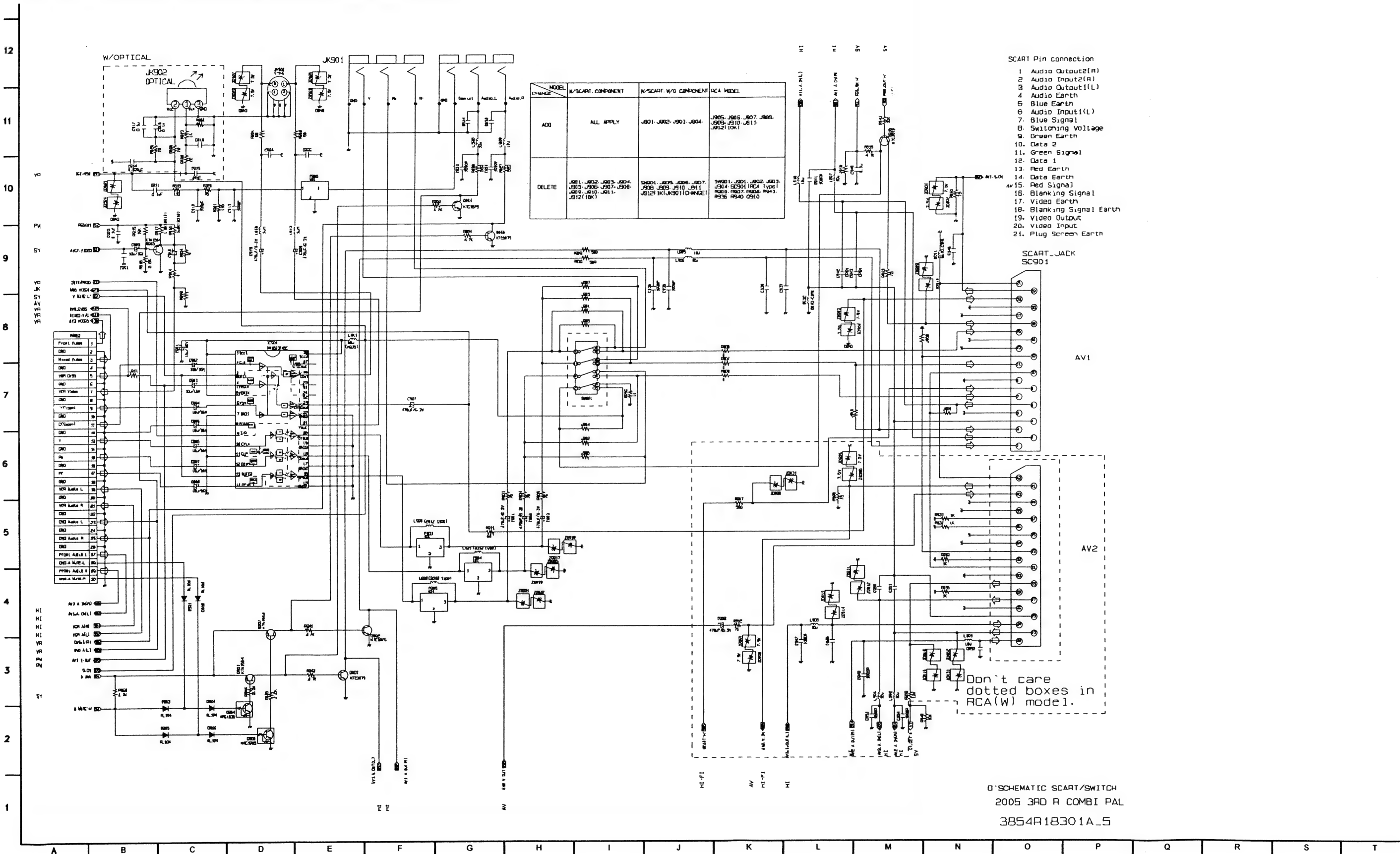


[illegible]

4. Hi-Fi CIRCUIT DIAGRAM

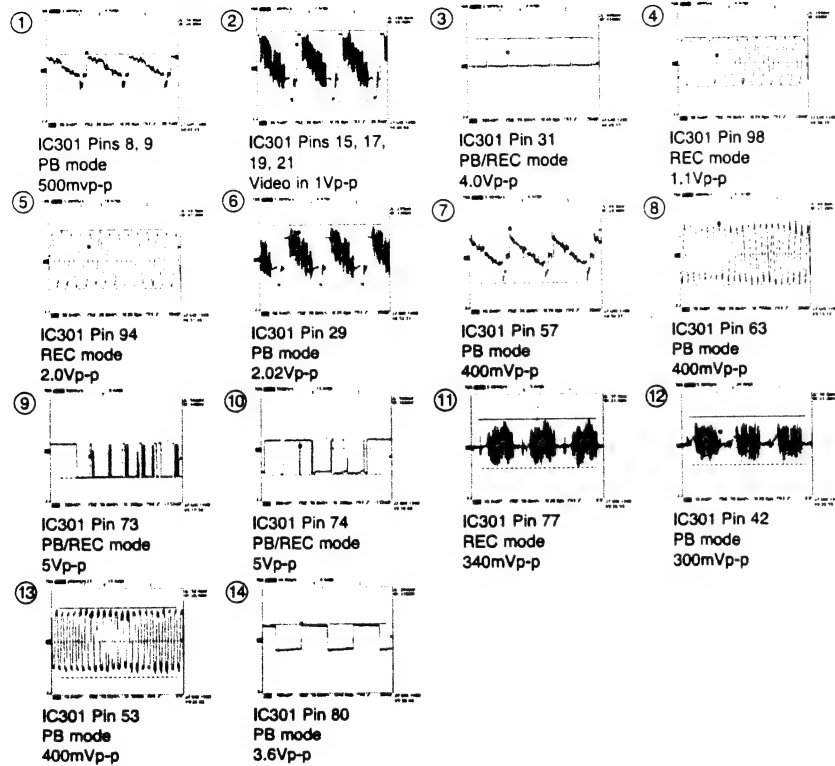


6. SCART CIRCUIT DIAGRAM (SCART Model Only)

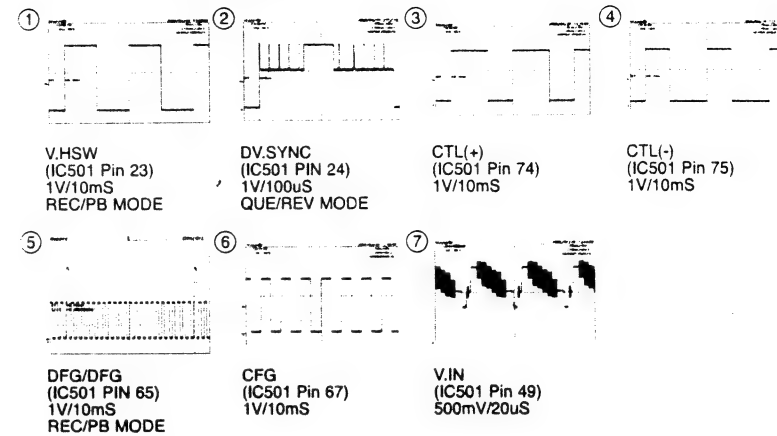


WAVEFORMS

◆ IC301 Oscilloscope Waveform



◆ IC501 Waveform Photographs



E-MODE	E	C	B
NO.			
Q501	0	0	740M
Q503	5.19	5.19	4.57
Q504	Y/C_VIDEO	0	Y/C_VIDEO
Q505	Y/C_VIDEO	0	Y/C_VIDEO
Q506	0	2Fsc	2Fsc
Q514	0	0	4.87
Q515	0	0	4.87
Q301	0	5.04	0
Q302	5.04	0	5.04
Q303	0	0	0
Q304	0	0	0
Q306	4.93	4.81	4.79
Q308	Y/C_VIDEO	0	Y/C_VIDEO
Q311	5.04	5.04	0
Q7S1	0	1.47	0
Q7S2	0	0	5.13
Q901	5.1	0	4.5
Q902	0	0	0
Q903	0	0	0
Q904	0	4.5	0
Q905	2.69	0	2
Q906	1.7	0	1.7
Q907	11.9	11.8	0
Q908	0	0	5
Q909	0	7.4	0
Q910	4.6	5	5.1

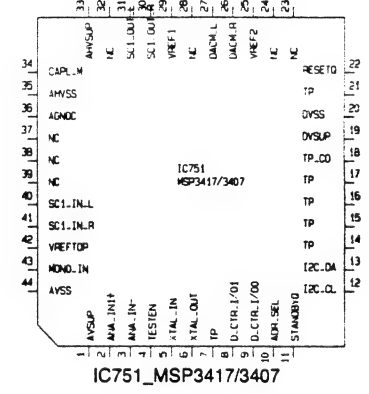
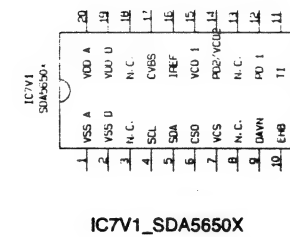
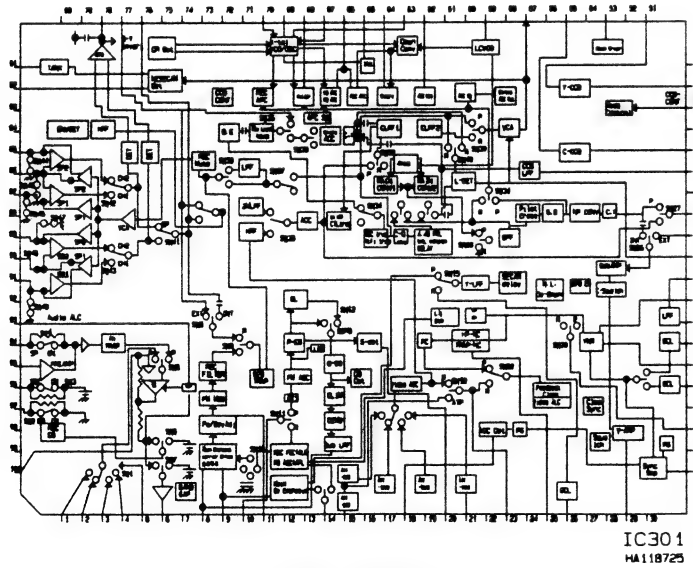
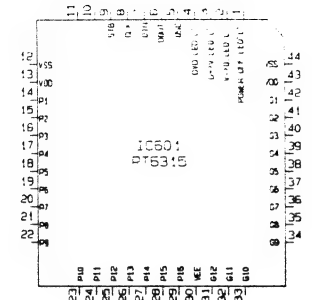
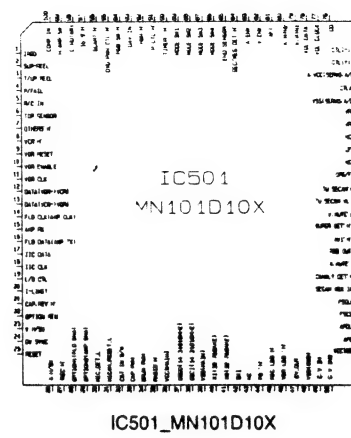
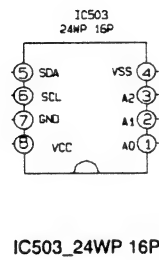
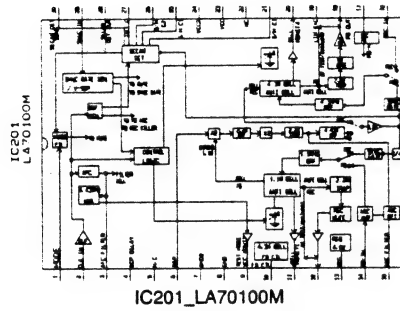
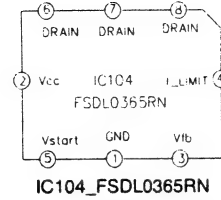
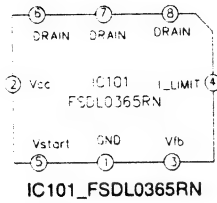
SECTION	EE		PLAY	
NO.	+	-	+	-
C203	3.55	0	3.51	0
C204	3.34	0	3.59	0
C207	3.12	0	1.93	0
C210	2.26	0	2.94	0
C213	3.29	0	2.77	0
C215	4.97	0	4.89	0
C301	5.01	0	0	0
C302	5.03	0	4.24	0
C304	4.99	0	4.85	0
C307	2.29	4.87	2.27	0
C311	5.11	5	190M	0
C314	2.35	0	2.31	0
C315	2.92	2.79	2.83	2.31
C316	1.48	0	1.57	0
C318	4.1	0	2.85	0
C320	2.39	0	2.2	0
C322	4.13	0	4.09	0
C323	2.35	0	2.31	0
C324	2.42	0	0	0
C325	2.95	0	3.13	0
C327	2.61	2.46	3.18(Y/C)	3.18(Y/C)
C331	17.5M	0	0	0
C333	4.94	0	4.88	0
C336	5.04	0	5.01	0
C337	3.36	0	2.53	0
C339	3.38	0	2.62	0
C346	5	0	4.91	0
C347	2.16	0	2.14	0
C348	1.62	0	1.5	0
C349	5.02	0	4.92	0
C353	2.31	0	2.25	0
C356	1.97	0	2.07	0
C357	2.17	0	2.02	0
C359	264M	0	130M	0
C362	5.2	0	5.19	0
C391	2.99	2.7	3.02	780M
C392	3.03	2.75	3.07	2.75
C393	3.03	2.76	3.12	0
C501	5.2	0	5.19	0
C502	5.19	0	5.19	0
C504	2.36	2.06	2.3	2
C505	5.22	0	5.19	0
C507	4.95	0	4.95	0
C511	2.41	1.32	2.41	1.3
C522	2.61	0	2.64	0
C523	2.61	2.61	2.64	0
C524	2.61	0	2.64	0
C526	16.74	0	13.6	0
C534	4.24	0	62M	0
C546	14.73	0	14.2	0
C7S1	4.9	4.17	4.85	4.09
C7S2	4.9	0	4.85	0
C7V1	5.22	0.91	5.28	0
C7V3	2.86	1.47	2.18	950M
C710	32.61	0	32.4	0

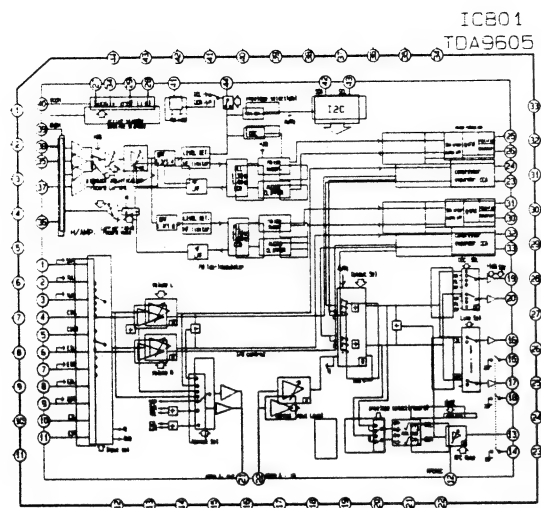
SECTION	EE		PLAY	
NO.	+	-	+	-
C718	5.05	0	4.96	0
C719	5.04	0	4.96	0
C724	2.39	164M	2.31	0

• CIRCUIT VOLTAGE CHART

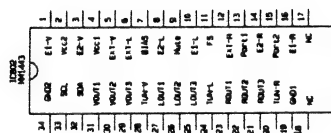
MODE PIN NO.	EE	PLAY	MODE PIN NO.	EE	PLAY	MODE PIN NO.	EE	PLAY	MODE PIN NO.	EE	PLAY	MODE PIN NO.	EE	PLAY	MODE PIN NO.	EE	PLAY	MODE PIN NO.	EE	PLAY	MODE PIN NO.	EE	PLAY	MODE PIN NO.	EE	PLAY	MODE PIN NO.	EE	PLAY	MODE PIN NO.	EE	PLAY			
IC 301			55	1.3	1.48	9	4.98	5.30	64	0	0	18	0	0	7	3.28v	3.74	17	0	0	3	6.02	5.96	17	0	0	3	6.02	5.96	17	0	0			
1	20m	100m	56	0	0	10	4.8	4.80v	65	2.36	2.36v	19	4.88	4.88	8	3.28	3.24	18	2.28	2.74	4	0	0	18	2.28	2.74	4	0	0	18	2.28	2.74			
2	20m	100m	57	2.08V	2.18	11	4.82	4.82	66	0	0	20	0	0	9	3.28v	3.24	19	0	0	5	6	5.96	19	0	0	5	6	5.96	19	0	0			
3	20m	100m	58	1.78V	2.14	12	4.72v	4.82	67	4.68	9.68v	21	0	0	10	3.28	3.24	20	2.56v	2.58	6	5.99	5.94	20	2.56v	2.58	6	5.99	5.94	20	2.56v	2.58			
4	1.95V	4.88V	59	4.6V	4.62	13	4.92	4.92	68	0	0	22	0	0	11	3.28v	3.26	21	2.64v	2.68	7	22.3m	21.3m	21	2.64v	2.68	7	22.3m	21.3m	21	2.64v	2.68			
5	1.94V	1.88V	60	4.62V	4.62	14	5.02	5.02	69	2.48	2.48v	23	0	0	12	0	0	22	0	0	8	6.68	6.65	22	0	0	8	6.68	6.65	22	0	0			
6	2.64	3.12V	61	3.82V	0	15	0	0	70	2.48	2.48	24	0	0	13	3.78	4.52	23	2.56v	2.92	9	6.7	6.67	23	2.56v	2.92	9	6.7	6.67	23	2.56v	2.92			
7	2.8V	2.74	62	2.2V	2.08V	16	4.98v	4.98	71	0	0	25	0	0	14	0	0	24	0	0	10	1.1m	0	24	0	0	10	1.1m	0	24	0	0			
8	2.5V	1.7V	63	2.32V	2.32	17	5.04	5.04	72	2.48	4.98	26	0	0	15	0	640m	25	0	0	11	6.71	6.68	25	0	0	11	6.71	6.68	25	0	0			
9	2.04	1.3	64	1.62V	1.64	18	4.98v	9.98	73	4.92	4.92v	27	0	0	16	5.82	6.64	26	2.52v	2.98	12	5.04	5.05	26	2.52v	2.98	12	5.04	5.05	26	2.52v	2.98			
10	1.80V	1.88	65	1.62	2.28	19	2.46v	2.46	74	0	0	28	0	0	17	5.28v	6.68	27	20m	0	13	12.03	11.99	27	20m	0	13	12.03	11.99	27	20m	0			
11	2.0V	1.8	66	2.30V	1.68	20	3.38V	3.38	75	2.52	2.42	29	0	0	18	0	620m	28	4.72	4.88	14	6.7	6.7	28	4.72	4.88	14	6.7	6.7	28	4.72	4.88			
12	1.6V	0.72	67	0	0	21	0	0	76	2.42	2.48	30	2.96v	3.98	19	6.28	6.66	19	6.28	6.66	15	0	0	19	6.28	6.66	15	0	0	19	6.28	6.66			
13	0V	0	68	1.12V	1.14	22	0	0	77	80m	80m	31	2.96	3.98	20	6.28	6.72	20	6.28	6.72	16	6.73	6.69	20	6.28	6.72	16	6.73	6.69	20	6.28	6.72			
14	1.26V	1.3	69	2.3V	2.38V	23	4.98v	4.96v	78	0	0	32	0	0	21	4.46v	4.42	21	4.46v	4.42	IC 901			21	4.46v	4.42	IC 901			21	4.46v	4.42	IC 901		
15	3.40V	3.36	70	0.82	0.82V	24	120mV	140m	79	4.02v	4.96v	33	4.88v	4.88	22	3.28	4.02	22	3.28	4.02	2	2.39	2.39	22	3.28	4.02	2	2.39	2.39	22	3.28	4.02			
16	0	4.78	71	2.2V	2.18V	25	4.94	4.94	80	4.96v	4.96	34	3.64v	3.58v	23	3.62	3.68	23	3.62	3.68	3	3.54	3.53	23	3.62	3.68	3	3.54	3.53	23	3.62	3.68			
17	2.38V	2.32	72	100m	2.42	26	4.92v	4.92v	81	2.8	280m	35	0	0	24	3.74	4.12	24	3.74	4.12	4	2.57	2.56	24	3.74	4.12	4	2.57	2.56	24	3.74	4.12			
18	1.88V	2.84	73	4.96V	4.98	27	20m	20mV	82	1v	2.62v	36	2.62v	2.58	25	3.74	3.78	25	3.74	3.78	5	1.52	1.34	25	3.74	3.78	5	1.52	1.34	25	3.74	3.78			
19	3.02V	2.94	74	4.96V	4.98	28	5.02	5.02v	83	120m	3.24v	37	0	0	26	0.1	640m	26	0.1	640m	6	0.43	3.68	26	0.1	640m	6	0.43	3.68	26	0.1	640m			
20	0	0	75	2.56V	2.54	29	4.98v	4.98	84	0	1.96	38	0	0	27	0	0	27	0	0	7	1.3m	0	27	0	0	7	1.3m	0	27	0	0			
21	2.38V	2.34V	76	2.34V	2.18	30	4.84v	4.84	85	0	0	39	0	0	28	3.7v	3.68	28	3.7v	3.68	8	4.9	4.9	28	3.7v	3.68	8	4.9	4.9	28	3.7v	3.68			
22	4.88V	4.82	77	2.68V	2.64	31	5.00v	5.00v	86	4.98	4.9v	40	2.54v	2.54	29	3.66	3.64	29	3.66	3.64	9	3.04	3.03	29	3.66	3.64	9	3.04	3.03	29	3.66	3.64			
23	2.64V	2.24	78	0	4.72	32	0	0	87	4.98	4.98	41	2.54	2.56	30	0.7	680m	30	0.7	680m	10	2.52	2.52	30	0.7	680m	10	2.52	2.52	30	0.7	680m			
24	0	0	79	0V	0	33	4.98	4.94	88	5.0v	5.0v	42	2.48	2.48	31	3.72	3.72v	31	3.72	3.72v	11	2	2.05	31	3.72	3.72v	11	2	2.05	31	3.72	3.72v			
25	2.08V	2.14	80	2.16	2.68	34	0	5.00v	89	0	0	43	2.3v	2.34	32	3.74v	4.08	32	3.74v	4.08	12	3.22	1.97	32	3.74v	4.08	12	3.22	1.97	32	3.74v	4.08			
26	3.08V	2.66V	81	4.06V	20M	35	5.02	100m	90	4.88	4.88v	44	0	0	33	3.62	3.68	33	3.62	3.68	13	3.99	3.99	33	3.62	3.68	13	3.99	3.99	33	3.62	3.68			
27	0	0	82	0V	0	36	3.16	3.12v	91	0	0	45	0	0	34	13.4v	13.32	34	13.4v	13.32	14	2.5	2.495	34	13.4v	13.32	14	2.5	2.495	34	13.4v	13.32			
28	150mV	140m	83	120M	2.72	37	5.7v	Da/Ck(5.5)	92	0	0	46	0	0	35	580m	520m	35	580m	520m	15	3.11	1.93	35	580m	520m	15	3.11	1.93	35	580m	520m			
29	3.88V	3.18V	84	2.78V	4.74	38	0	5.7v	93	5.04v	5.04v	47	2.88	2.88v	36	0	520m	36	0	520m	16	3.2	3.18	36	0	520m	16	3.2	3.18	36	0	520m			
30	2.08V	2.74V	85	2.114	2.42	39	520m	0	94	4.88	0	48	0	0	37	580m	520m	37	580m	520m	17	27.4m	4.11	37	580m	520m	17	27.4m	4.11	37	580m	520m			
31	4.74V	4.72m	86	2.04V	2.08V	40	4.84	520m	95	4.98	4.98	49	0.98	2.94	38	0	0	38	0	0	18	112.1m	3.35	38	0	0	18	112.1m	3.35	38	0	0			
32	2.08V	2.12V	87	2.04	2.08V	41	4.83	Da/Ck(5.62)	96	0	0	50	1.84	1.94v	39	0	20m	39	0	20m	19	2.27	2.26	39	0	20m	19	2.27	2.26	39	0	20m			
33	2.42V	2.26	88	0V	0	42	4.88v	4.88v	97	0	0	51	0.98	4.78	40	4.7	4.76	40	4.7	4.76	20	1.99	2.12	40	4.7	4.76	20	1.99	2.12	40	4.7	4.76			
34	1.58	1.54V	89	2.14	2.08V	43	0	0	98	4.98	4.98	52	3.26	3.28v	41	0v	1.68	41	0v	1.68	21	2.31	2.37	41	0v	1.68	21	2.31	2.37	41	0v	1.68			
35	3.30V	3.36	90	2.14	2.08	44	5.02	5.0v	99	20m	4.98v	53	2.38	2.38v	42	5.0v	5.04m	42	5.0v	5.04m	22	0.78	0.81	42	5.0v	5.04m	22	0.78	0.81	42	5.0v	5.04m			
36	2.50V	2.32	91	2.14V	2.08	45	0	0	100	0	0	54	2.52	2.54v	43	50.v	4.96	43	50.v	4.96	23	5.02	5.01	43	50.v	4.96	23	5.02	5.01	43	50.v	4.96			
37	3.10V	3.18	92	4.88V	4.89	46	3.94	3.94v	100	0	0	55	1.88	1.88	44	20m	3.38	44	20m	3.38	24	5.02	5	44	20m	3.38	24	5.02	5	44	20m	3.38			
38	2.60V	2.28	93	300MV	260M	47	2.88	2.88v	IC 751			56	0	0	1	4.88	4.88v	IC 751			25	2.44	2.27	IC 901			25	2.44	2.27	IC 901					
39	1.40V	1.42V	94	2.48V	2.40V	48	0	0	1	4.88	4.88v	57	0	0	2	1.46	1.48	2	1.46	1.48	26	2.44	2.26	IC 901			26	2.44	2.26	IC 901					
40	2.30V	2.16V	95	2.48V	1.88	49	0.98	2.94	2	1.46	1.48	58	120m	120m	3	1.38	1.38	3	1.38	1.38	27	2.82	2.85	IC 901			27	2.82	2.85	IC 901					
41	1.08V	1.58V	96	2.06V	1.88	50	1.84	1.94v	4	0	0	59	4.92v	4.92v	14	DA/CL(2.82)	DA/CL(82M)	14	DA/CL(2.82)	DA/CL(82M)	28	181.5m	187.4m	IC 901			28	181.5m	187.4m	IC 901					
42	1.82V	1.84V	97	0	0	51	0.98	4.78	5	2.26v	2.24	60	4.92v	4.92v	15	2.89	1.41	15	2.89	1.41	29	371.6m	212.2m	IC 901			29	371.6m	212.2m	IC 901					
43	2.04V	2.28V	98	2.30V	2.46V	52	3.26	3.28v	6	2.38	0	61	0	0	16	1.53	950M	16	1.53	950M	30	2.08</													

• IC BLOCK DIAGRAMS

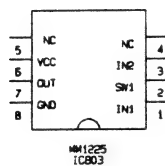




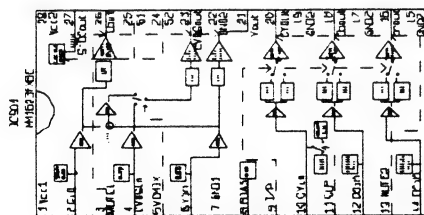
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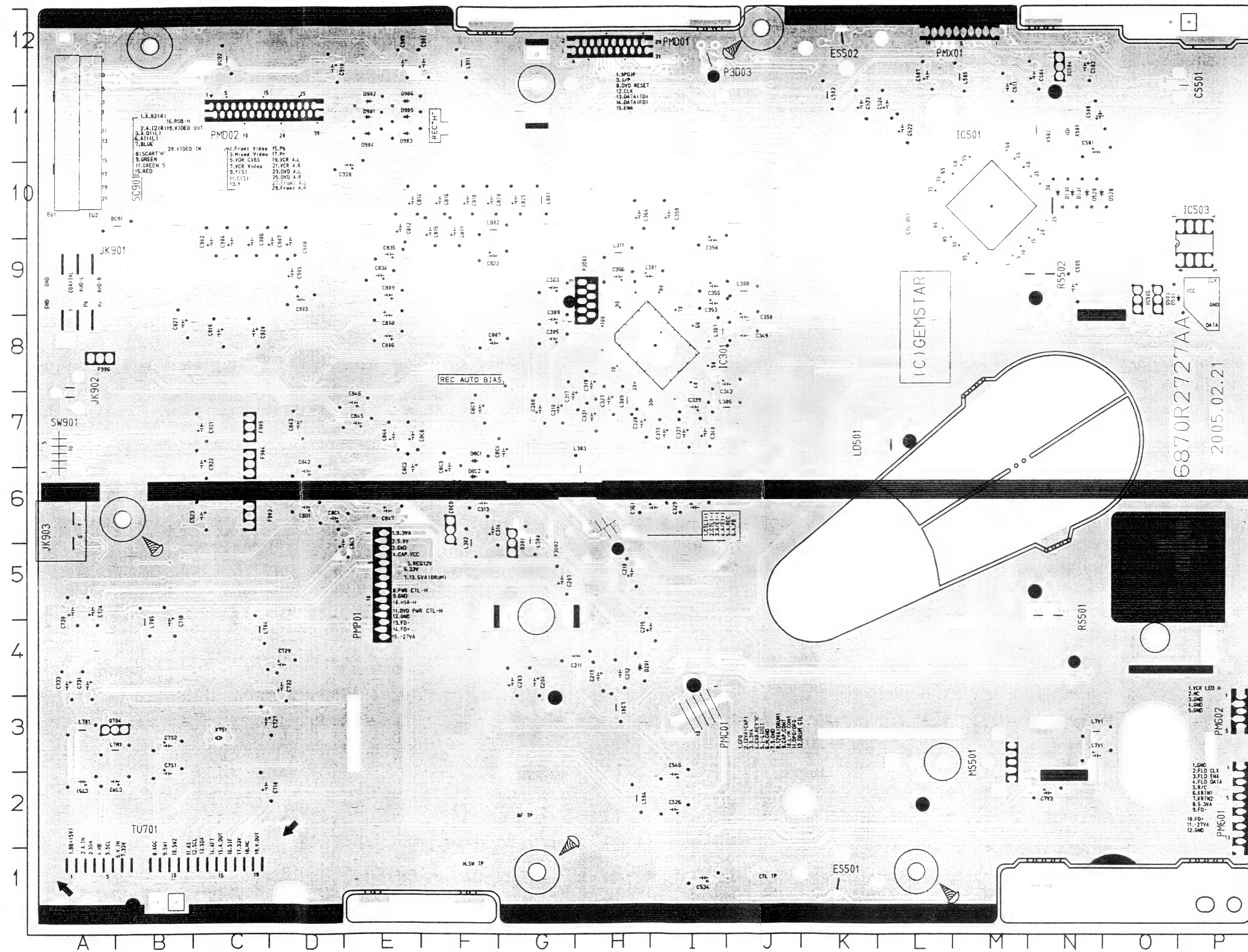
LOCATION GUIDE

BC91	010	C367	19	C721	N4	C8C9	M7	IC504	C12	PIN0022 K7	PIN0226 M7	0907	09	R539	D11	R7M1	P2	R924	P7
BC92	M12	C368	18	C722	N4	C801	M6	IC505	B9	PIN0042 D10	PIN0227 L7	0910	N10	R542	B8	R7M2	P2	R925	P7
C201	15	C369	19	C723	N4	C901	M2	IC751	N4	PIN0043 D11	PIN0228 N9	0911	N8	R544	B11	R7M4	O2	R926	P7
C202	J4	C370	19	C724	P5	C902	M9	IC751	C2	PIN0044 E10	PIN0229 N8	0912	N10	R545	N4	R7M5	P2	R927	P9
C203	J4	C371	09	C726	N4	C903	M9	IC801	K9	PIN0045 D10	PIN0230 N8	R201	14	R546	N4	R7M6	P2	R928	N9
C204	J4	C372	18	C727	N3	C904	M9	IC802	L7	PIN0046 D11	PIN0231 L11	R202	14	R547	C10	R7S1	O2	R929	09
C205	J5	C375	M7	C728	N4	C905	M6	IC803	M6	PIN0047 B8	PIN0232 K11	R203	14	R548	B11	R7V1	C2	R930	O10
C206	15	C376	M8	C729	N4	C906	M9	IC901	N9	PIN0048 I11	PIN0235 O11	R204	M5	R550	E7	R7V2	C2	R931	O10
C207	J5	C378	14	C730	P5	C907	M9	J901	P7	PIN0049 H10	PIN0236 O5	R205	15	R551	E7	R7V3	C2	R932	O11
C208	15	C379	17	C731	P4	C908	M9	J902	P7	PIN0050 I11	PIN0237 O5	R301	18	R552	C5	R7V4	C2	R933	O11
C209	15	C380	M7	C732	N4	C909	L12	J903	P6	PIN0051 E12	PIN0238 O2	R302	18	R553	C5	R7V5	C2	R934	M12
C210	15	C381	O7	C733	P4	C910	M12	J904	P6	PIN0052 M4	PIN0244 K7	R303	18	R554	C9	R7V6	C2	R935	N10
C211	14	C500	C11	C751	P2	C911	P8	J905	P7	PIN0055 D11	PIN0245 B8	R304	J8	R555	C9	R7V7	C2	R936	O11
C212	14	C501	C11	C752	P2	C912	P8	J906	P7	PIN0056 E11	PIN0246 B8	R305	J8	R556	C5	R7V8	B2	R939	O11
C213	14	C502	C12	C7M1	P2	C913	P8	J907	P7	PIN0057 E10	PIN0247 D11	R306	J8	R557	G1	R7V9	B2	R940	N11
C214	15	C503	D12	C7M2	P2	C914	P7	J908	O11	PIN0058 D10	PIN0249 D11	R307	J5	R558	C9	R801	L8	R941	09
C215	N4	C504	C12	C7M3	P2	C915	P8	J909	O11	PIN0059 E10	PIN0250 C5	R308	J5	R559	C9	R802	L9	R942	09
C217	15	C505	C9	C7M4	P2	C916	P7	J910	O11	PIN0060 C5	PIN0251 D9	R309	J5	R560	C5	R803	L10	R943	N11
C300	J6	C506	E10	C7M5	P2	C917	P7	J911	N12	PIN0061 D9	PIN0252 O3	R310	J5	R561	E10	R804	K9	R944	09
C301	19	C507	E12	C7M6	O2	C918	P7	J912	N11	PIN0062 E10	PIN0253 O9	R311	J7	R562	E10	R805	K9	R945	L11
C302	18	C508	O10	C7M7	P2	C919	N8	J901	P8	PIN0063 M2	PIN0254 O9	R312	J7	R563	N4	R806	K9	R956	P7
C303	J9	C509	O11	C751	O2	C320	N8	J902	P7	PIN0064 K9	PIN0255 O9	R313	J6	R564	E12	R807	J9	R959	M11
C304	18	C510	M12	C752	O2	C321	M7	J903	P6	PIN0065 K9	PIN0256 O9	R315	J7	R565	E12	R808	K9	R961	O10
C305	J8	C511	O11	C753	N2	C322	M7	L201	13	PIN0066 M5	PIN0257 O9	R316	16	R566	N4	R809	K9	R963	M8
C306	J8	C512	O11	C7V1	C3	C923	M6	L300	J6	PIN0067 M5	PIN0263 H10	R317	16	R567	E10	R810	K8	R964	N10
C307	18	C513	E10	C7V2	C2	C924	O5	L302	K5	PIN0068 N4	PIN0264 N10	R320	J8	R570	B8	R811	K8	R967	K7
C308	J7	C514	O11	C7V3	C2	C925	M12	L303	16	PIN0069 N4	PIN0265 M11	R321	J8	R575	O3	R812	K8	R968	T12
C309	J8	C515	C11	C7V4	C3	C926	P5	L305	17	PIN0070 K8	PIN0266 N4	R322	J7	R576	O3	R821	K8	R969	K2
C310	J7	C516	E9	C7V5	C2	C927	O8	L306	17	PIN0071 K8	PIN0267 E7	R323	J7	R577	O2	R822	K8	R970	O5
C312	J5	C517	O10	C802	K8	C928	L18	L307	M8	PIN0073 K8	PIN0268 C5	R324	J7	R578	O2	R823	K8	R972	C9
C313	K6	C518	O10	C803	K8	C931	O9	L308	O9	PIN0075 K8	PIN0269 C9	R325	17	R579	C10	R824	K8	SC901	P10
C314	K6	C519	K3	C804	K8	C932	O9	L311	19	PIN0076 L8	PIN0277 J10	R329	G8	R580	D10	R825	L10	SW901	P7
C315	18	C520	B8	C805	K8	C933	O9	L501	O12	PIN0077 L9	PIN0280 O10	R330	G8	R581	C10	R826	L10	U7001	P1
C316	18	C521	K8	C806	K8	C934	O9	L503	F5	PIN0078 L9	PIN0283 O10	R331	H8	R582	C10	R829	K8	X301	O9
C317	J7	C523	F11	C807	K8	C935	O11	L504	12	PIN0079 L10	PIN0286 P10	R332	M9	R583	B8	R830	K8	X501	C11
C319	18	C524	E11	C808	L8	C936	P12	L505	O12	PIN0080 K10	PIN0289 O11	R333	M9	R584	E11	R831	K8	X502	C11
C320	J7	C525	N4	C809	L9	C937	O11	L506	E9	PIN0081 K9	PIN0292 O10	R337	18	R585	O11	R832	K8	X751	N3
C321	18	C526	K2	C810	L9	C938	P12	L507	E9	PIN0082 J9	PIN0295 O12	R338	18	R588	E10	R833	K8	Z0501	E9
C322	18	C527	H2	C811	L9	C940	N11	L701	P3	PIN0084 K8	PIN0298 P12	R339	H8	R592	E9	R834	L8	Z0502	E9
C323	17	C528	112	C812	L10	C941	N11	L704	N4	PIN0086 K8	PIN0301 O11	R342	M9	R593	E9	R835	J10	Z0503	E9
C324	18	C530	H12	C813	L10	C942	O11	L705	O4	PIN0088 K8	PIN0304 N6	R350	G8	R594	O9	R836	J10	Z0504	E9
C325	M7	C534	H1	C814	L10	C943	N11	L7M1	P3	PIN0090 K8	PIN0307 N6	R351	G8	R5A1	C10	R840	L6	Z0801	J10
C327	17	C535	E12	C815	K10	C945	O10	L7V1	C3	PIN0092 K8	PIN0310 N7	R359	17	R583	C5	R841	L6	Z0802	J10
C328	17	C543	N4	C816	K10	C947	O12	L801	J10	PIN0093 L8	PIN0311 A3	R360	G9	R584	O9	R842	L7	Z0901	O10
C329	M6	C544	N4	C817	K10	C948	O12	L802	K10	PIN0094 L8	PIN0312 A3	R361	G9	R5C5	G1	R843	L7	Z0902	O10
C331	17	C545	N4	C818	K10	C949	P12	L901	P12	PIN0095 P8	PIN0313 A3	R362	H8	R5C6	B11	R844	M7	Z0903	O10
C332	M7	C546	M2	C819	K10	C950	O11	L902	O12	PIN0096 P8	PIN0314 A3	R363	M9	R5C7	E12	R845	M7	Z0904	O11
C335	M7	C547	N4	C820	K10	C951	O12	L903	O12	PIN0097 P7	PIN0315 A3	R364	M9	R5C9	C12	R846	K7	Z0905	P10
C336	M8	C551	N4	C821	K9	C952	P12	L984	O11	PIN0098 P9	PIN0316 A3	R365	L6	R502	A9	R5K1	H12	R847	K7
C337	M7	C552	B11	C822	K9	C953	O11	L985	O12	PIN0099 P9	PIN0317 A3	R366	O12	R503	112	R701	P3	R8C1	M7
C338	M8	C553	O12	C823	K9	C954	M12	L986	P12	PIN0102 M11	PIN0318 A3	R367	J5	R504	B9	R702	O3	R8C2	M7
C339	M7	C554	E11	C824	J9	C955	G8	L907	M11	PIN0103 M11	PIN0319 A3	R368	K2	R505	K2	R703	O2	R8C3	M7
C340	M7	C556	E10	C825	J10	C5501	B11	L988	P9	PIN0107 B2	PIN0320 A3	R369	16	R506	E11	R704	O2	R8C4	M7
C342	M8	C557	G1	C826	K9	CTL:TP	G1	L989	P9	PIN0108 B2	PIN0321 A3	R370	J8	R507	E11	R705	M6	Z0911	O11
C343	G8	C558	E10	C827	K8	O201	14	L910	O11	PIN0109 B2	PIN0322 A3	R371	J8	R508	O11	R706	N2	Z0912	O11
C344	M8	C559	O10	C828	K8	O501	89	L911	K12	PIN0110 B2	PIN0323 A3	R372	17	R509	O11	R707	N4	Z0913	O12
C345	M8	C560	O10	C829	K8	O502	112	L912	O5	PIN0111 B2	PIN0324 A3	R373	G8	R510	O10	R708	N4	Z0914	O12
C346	M8	C570	C11	C830	K8	O503	C10	L913	O5	PIN0112 B2	PIN0325 A3	R374	88	R512	N4	R709	N4	Z0915	O11
C347	M8	C571	C11	C831	K8	O504	C10	L914	N6	PIN0113 C2	PIN0326 A3	R375	89	R513	112	R710	N4	Z0916	O11
C348	M8	C581	C5	C832	K8	O505	C10	L915	N7	PIN0114 C2	PIN0327 A3	R376	O11	R514	112	R711	N4	Z0917	M6
C349	G8	C582	O9	C833	L8	O8C1	K7	L922	M7	PIN0115 C2	PIN0328 A3	R377	O11	R515	112	R712	N4	Z0918	M6
C350	G8	C583	O10	C834	L9	O8C2	K6	L9501	E7	PIN0116 C2	PIN0329 A3	R378	O11	R516	112	R713	N4	Z0919	M7
C351	M8	C584	O10	C835	L9	O8C3	L11	M5501	D3	PIN0117 C2	PIN0330 A3	R379	C5	R517	O10	R714	L2	Z0920	M6
C352	M8	C588	E10	C842	M6	O902	L11	P3001	18	PIN0118 C2	PIN0331 A3	R380	O11	R518	O10	R715	L2	Z0921	M7
C353	M9	C591	A2	C843	M7	O903	L11	P3002	16	PIN0119 C2	PIN0332 A3	R381	O3	R520	O10	R716	N2	Z0922	M7
C354	M8	C706	N2	C844	L7	O904	L11	P3003	H12	PIN0120 C2	PIN0333 A3	R382	P4	R521	N4	R717	O4	Z0923	111
C355	M9	C707	N2	C845	L7	O905	L11	PIN0001 P3	PIN0172 D11	PIN0172 D11	PIN0334 A3	R383	P4	R522	G4	R718	O4	Z0924	111
C356	M8	C709	N2	C846	L7	O906	L11	PIN0002 P2	PIN0173 D11	PIN0173 D11	PIN0335 A3	R384	P3	R523	G4	R719	O4	Z0925	P5
C357	M9	C710	N2	C847	L6	E5501	G1	PIN0003 C2	PIN0174 D11	PIN0174 D11	PIN0336 A3	R385	O2	R524	G4	R720	P4	Z0926	O5
C358	M9	C712	N3	C8C1	M6	E5502	E12	PIN0004 C2	PIN0217 L9	PIN0217 L9	PIN0337 A3	R386	O2	R525	G4	R721	P4	Z0927	P5
C359	H10	C713	N3	C8C2	L6	F903	M6	PIN0005 L5	PIN0218 K9	PIN0218 K9	PIN0338 A3	R387	K7	R526	N4	R722	P3	Z0928	P5
C360	M9	C714	N3	C8C3	K6	F904	M7	PIN0006 L4	PIN0219 K9	PIN0219 K9	PIN0339 A3	R388	O9	R527	B8	R723	P4	Z0929	K7
C361	M9	C715	N3	C8C4	J7	F905	M7	PIN0007 L5	PIN0220 K9	PIN0220 K9	PIN0340 A3	R389	C12	R528	P4	R724	P3	Z0930	K7
C362	18	C716	N3	C8C5	M6	F906	M8	PIN0008 L6	PIN0221 K9	PIN0221 K9	PIN0341 A3	R390	O9	R529	P4	R725	P4	Z0931	K7
C364	110	C717	O4	C8C6	L7	HV:SW:TP:K1	M7	PIN0009 L5	PIN0222 K8	PIN0222 K8	PIN0342 A3	R391	C11	R530	P4	R726	P3	Z0932	M12
C365	19	C718	O4	C8C7	K7	IC201	15	PIN0010 L5	PIN0223 K8	PIN0223 K8	PIN0343 A3	R392	M12	R531	C11	R727	P3	Z0933	M12
C366	19	C720	N4	C8C8	L7	IC503	A10												

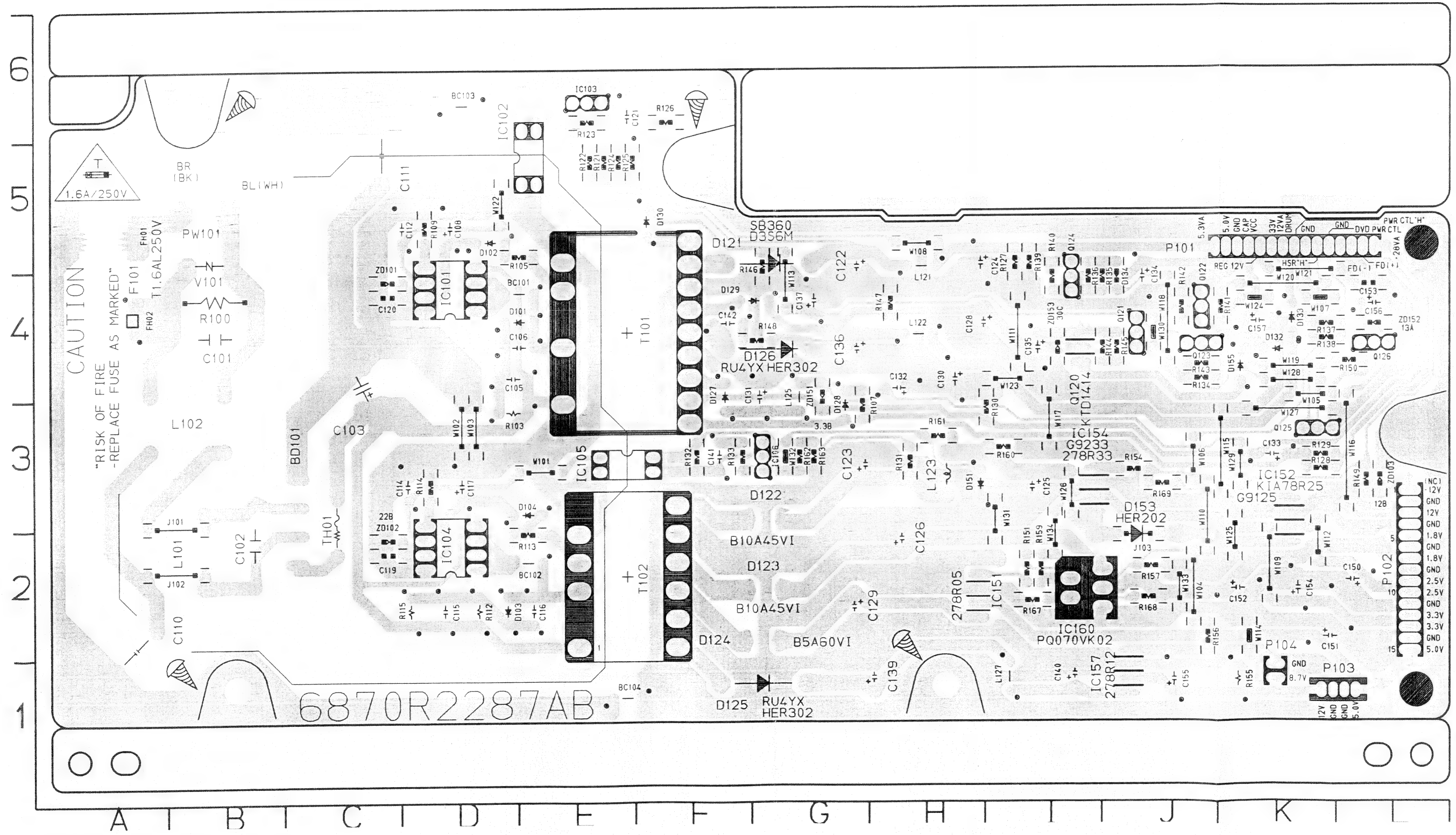
1. VCR P.C.BOARD(TOP VIEW)



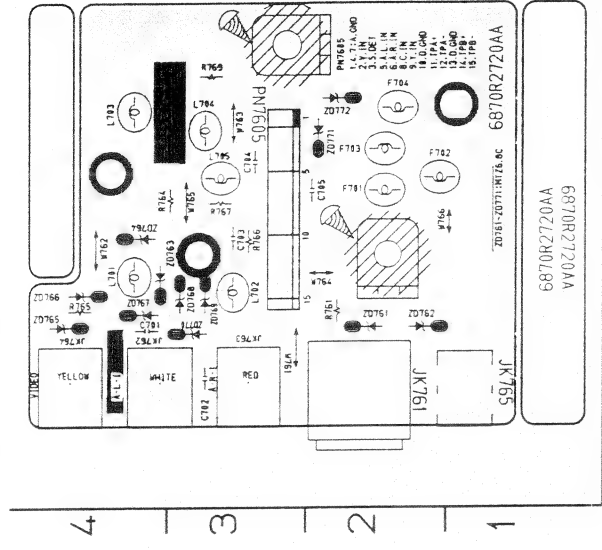
2. VCR P.C.BOARD(BOTTOM VIEW)



3. SMPS P.C.BOARD



4. JACK P.C. BOARD

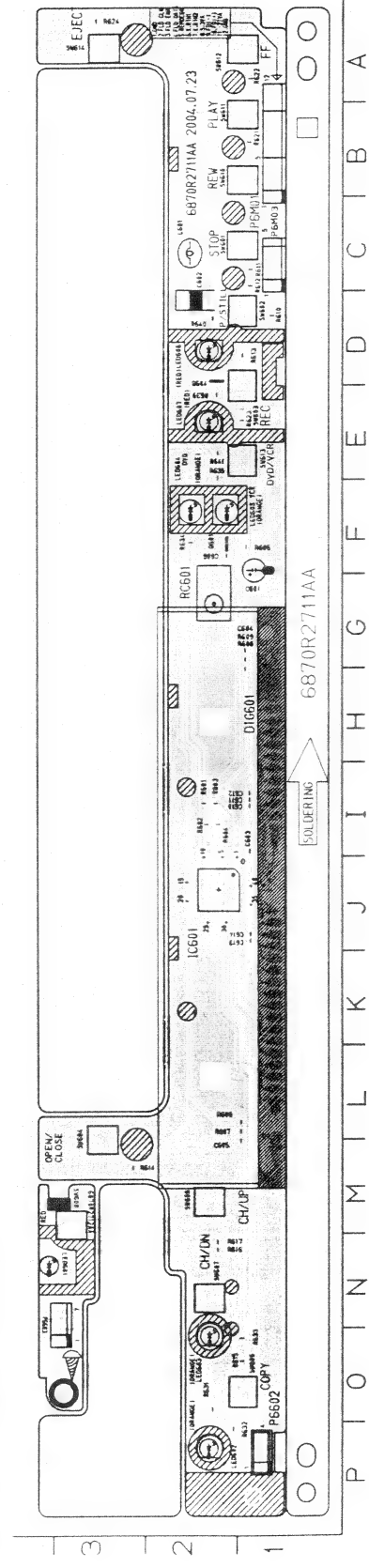
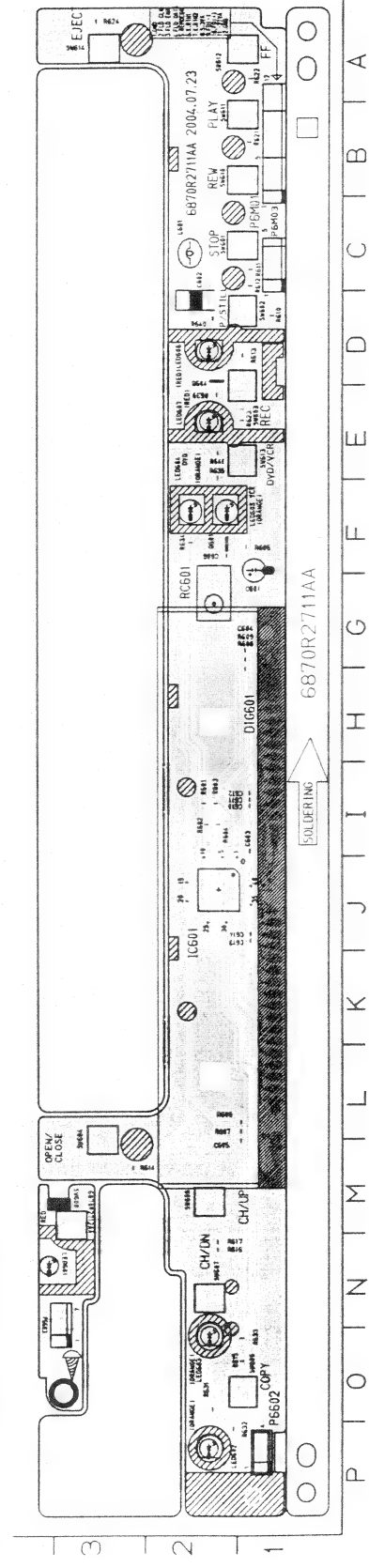
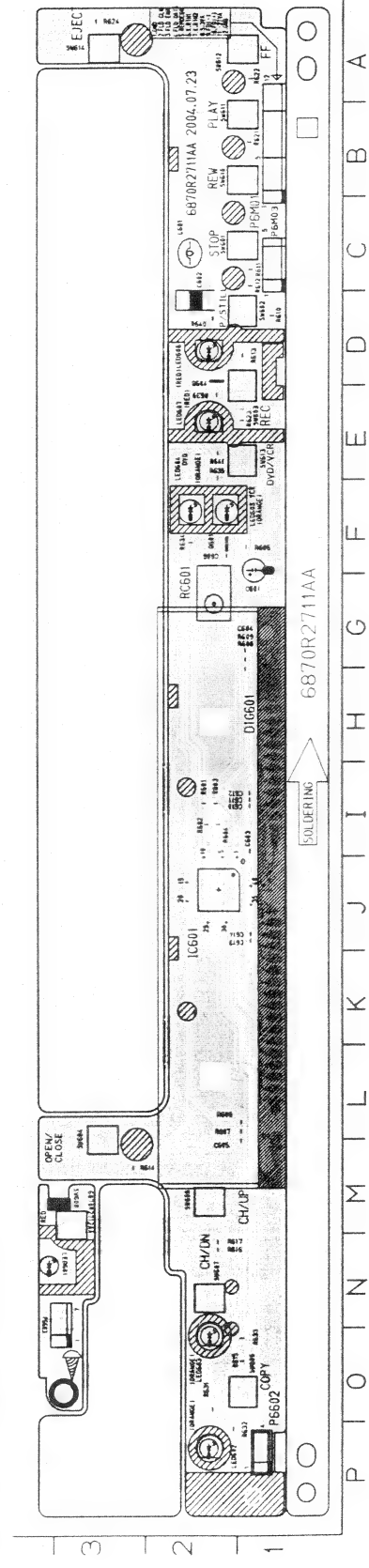


LOCATION GUIDE					
C701	D4	Z0761	D2	L701	D4
C702	C3	Z0762	D2	L702	D3
C703	C3	Z0763	D4	L703	B4
C704	C3	Z0764	C4	L704	C3
C705	C2	Z0765	D4	L705	C3
F701	C2	Z0766	D4	PN7605	
F702	C2	Z0767	D3	R761	D2
F703	C2	Z0768	D3	R764	C3
F704	B2	Z0769	D3	R765	C4
JK161	E2	Z0770	D3	R766	D4
JK162	E4	Z0771	D2	R767	B3
JK163	E4	C701	D4	Z0761	D2
JK165	D1	C702	E3	Z0762	D2
L701	D4	C703	C3	Z0763	D4
L702	D3	C704	C3	Z0764	C4
L703	B4	C705	C2	Z0765	D4
L704	C3	C701	C2	Z0766	D4
L705	C3	C702	C2	Z0767	D4
PN7605		C703	C2	Z0768	D3
R761	D2	C704	B2	Z0769	D3
R764	C3	JK161	E2	Z0770	C3
R765	D4	JK162	E4	Z0771	D2
R766	C3	JK163	E4	Z0772	B2
R767	C3	JK164	E4		
R769	B3	JK165	D1		

LOCATION GUIDE

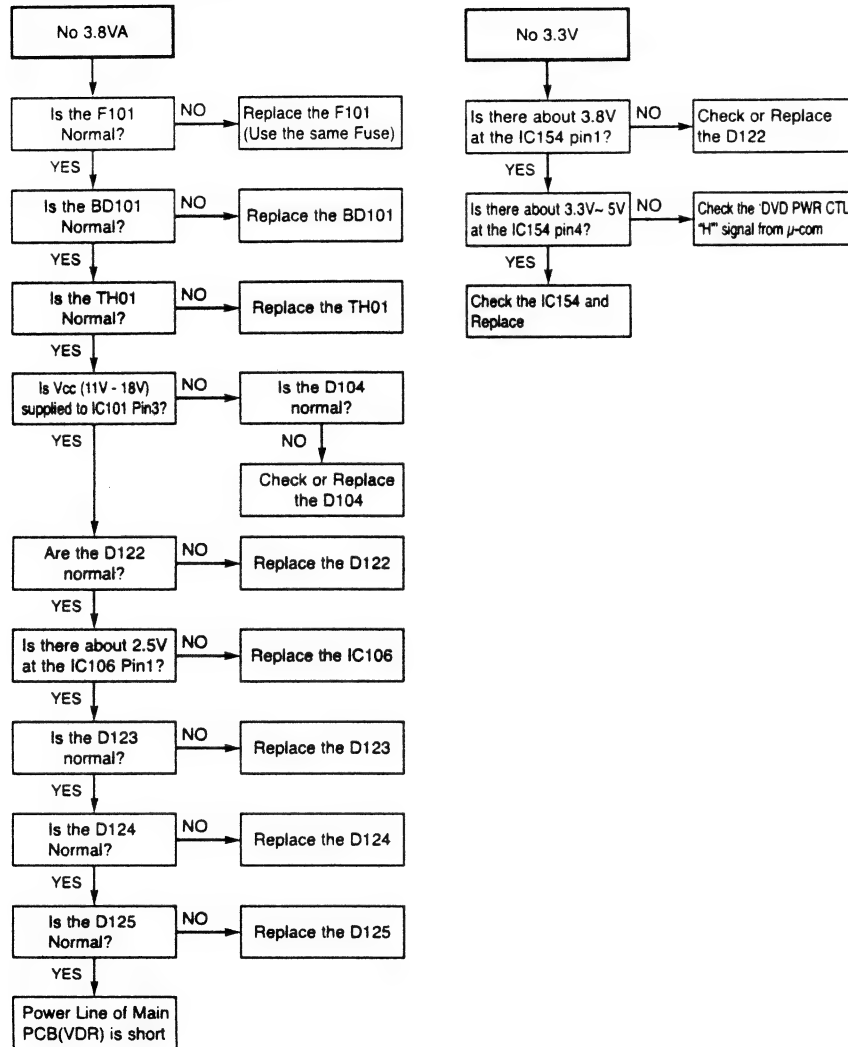
BC101	E4	C152	K2	L101	B2	R135	J4
BC102	E5	C153	K4	L102	H3	R136	I4
BC103	D6	C154	K2	L121	B5	R137	K4
BC104	E1	C155	J1	L122	H4	R138	K4
BD101	C3	C156	L4	L123	H3	R139	I5
C101	B4	C157	K4	L125	G3	R140	I4
C102	B2	D101	E4	L127	I1	R141	K4
C103	C4	D102	D5	P101	J5	R142	J4
C105	D4	D103	D2	P102	L3	R143	J4
C106	E4	D104	E3	P103	K1	R144	J4
C108	D5	D121	G5	P104	K1	R145	J4
C110	A2	D122	G3	PW101	B5	R146	G5
C111	C5	D123	G2	Q120	I4	R147	H4
C112	D5	D124	G2	Q121	J4	R148	G4
C114	D3	D125	G1	Q122	J4	R149	L3
C115	D2	D126	G4	Q123	J4	R150	L4
C116	E2	D127	F3	Q124	K3	R151	J4
C117	D3	D128	G3	Q125	K4	R152	J3
C119	C2	D129	G4	Q126	L4	R155	K1
C120	C4	D130	F5	Q100	B4	R156	J2
C121	E6	D132	A4	Q103	D3	R157	J2
C122	G5	D133	K4	Q105	E5	R159	I2
C123	G3	D134	J4	Q107	G3	R160	I3
C124	H5	D151	H3	Q109	D5	R161	H3
C125	I3	D153	J2	Q112	D2	R162	G3
C126	H2	D155	K4	Q113	E2	R163	G3
C128	H4	FH01	A5	Q114	R3	R167	I2
C129	G2	FH02	A4	Q115	D2	R168	J2
C130	H4	IC101	D4	Q121	E5	R169	J3
C131	G3	IC102	E6	Q122	E5	T101	E3
C132	H4	IC103	E6	Q123	E6	T102	E2
C133	K3	IC104	D2	Q124	E5	TH01	C5
C134	J4	IC105	F3	Q125	E5	V101	B3
C135	I4	IC106	G3	Q126	F6	ZD101	C4
C136	G4	IC151	H2	Q127	I5	ZD102	C2
C137	G4	IC152	K2	Q128	K3	ZD103	L3
C139	H1	IC154	I3	Q129	K3	ZD151	G3
C140	I1	IC157	J1	Q130	I3	ZD152	L4
C141	F3	IC160	I2	Q131	H3	ZD153	I4
C142	F4	J101	B3	Q132	F3		
C150	L2	J102	B2	Q133	F3		
C151	K2	J103	J2	Q134	J4		

5. KEY & TIMER P.C.BOARD

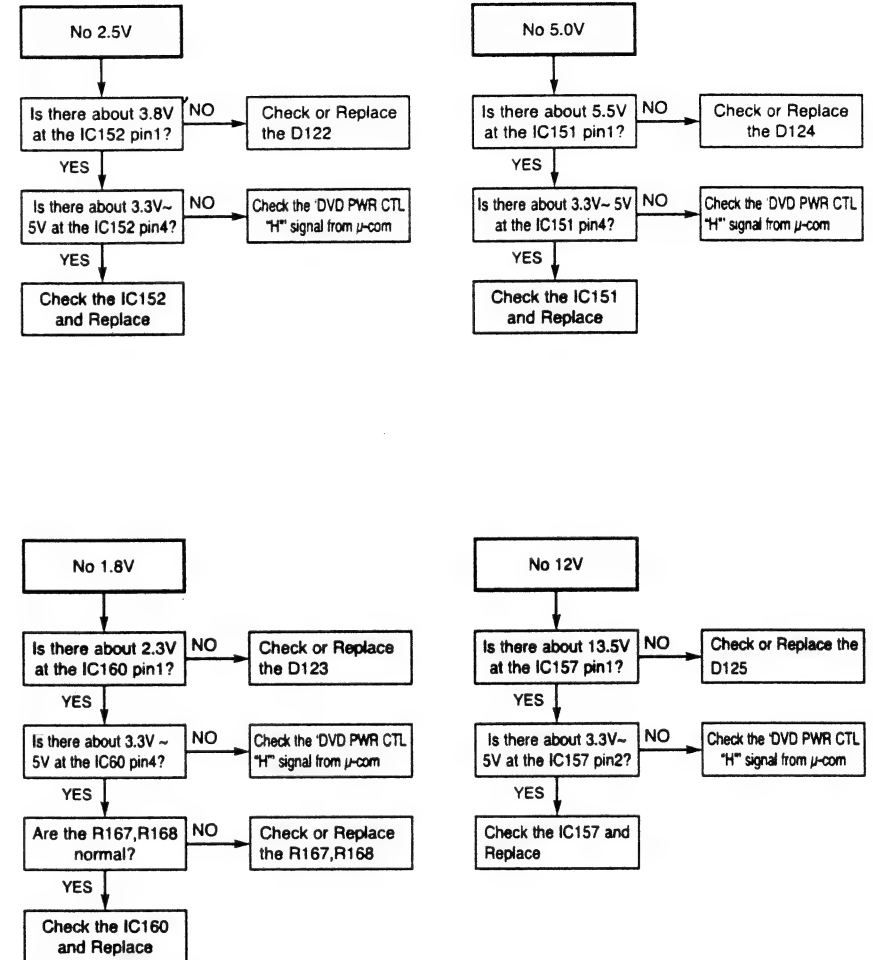
[illegible]3-67

VDR PART VDR ELECTRICAL TROUBLESHOOTING GUIDE

1. Power(SMPS) CIRCUIT

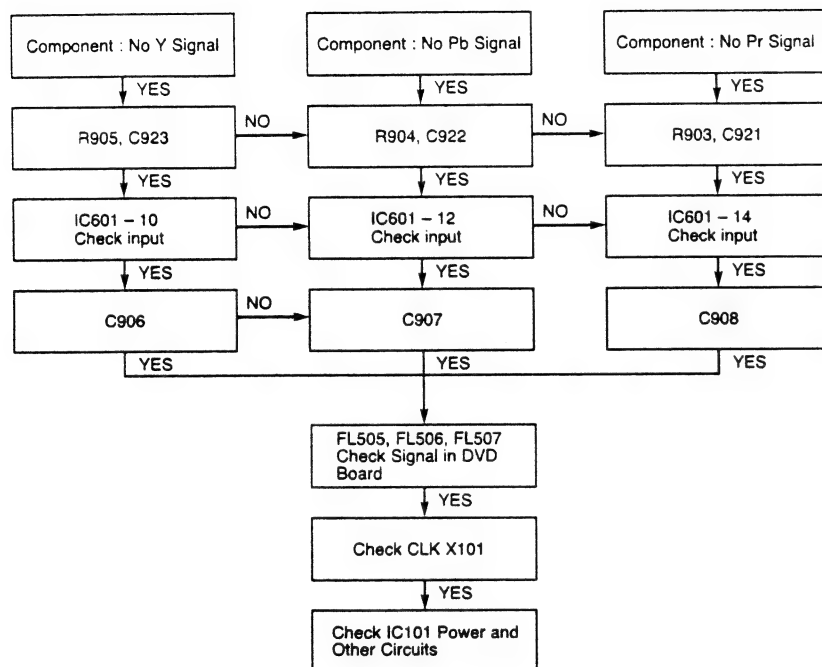


VDR ELECTRICAL TROUBLESHOOTING GUIDE



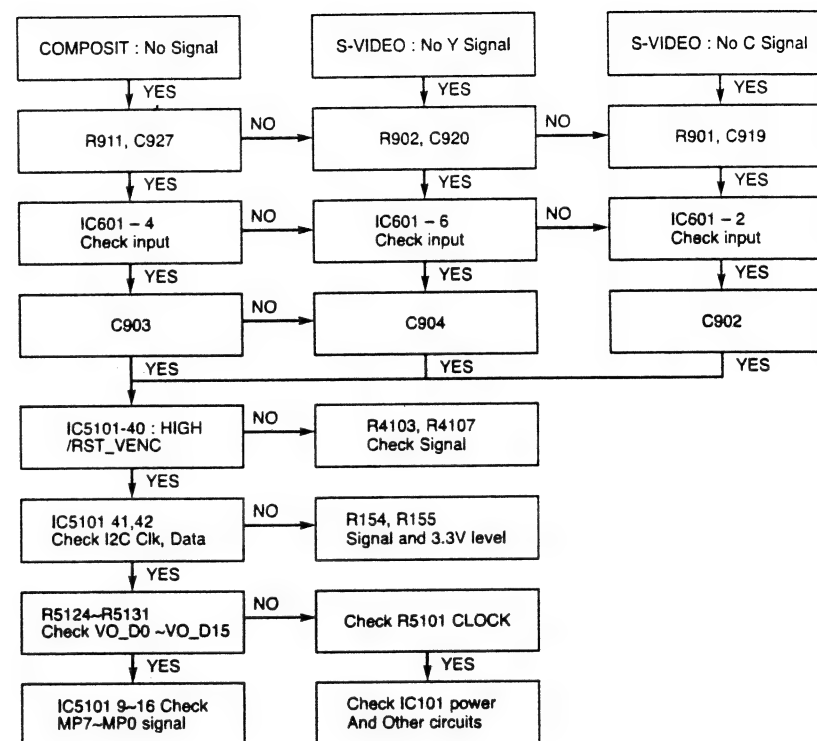
VDR ELECTRICAL TROUBLESHOOTING GUIDE

2. No Component video signal when playing DISC



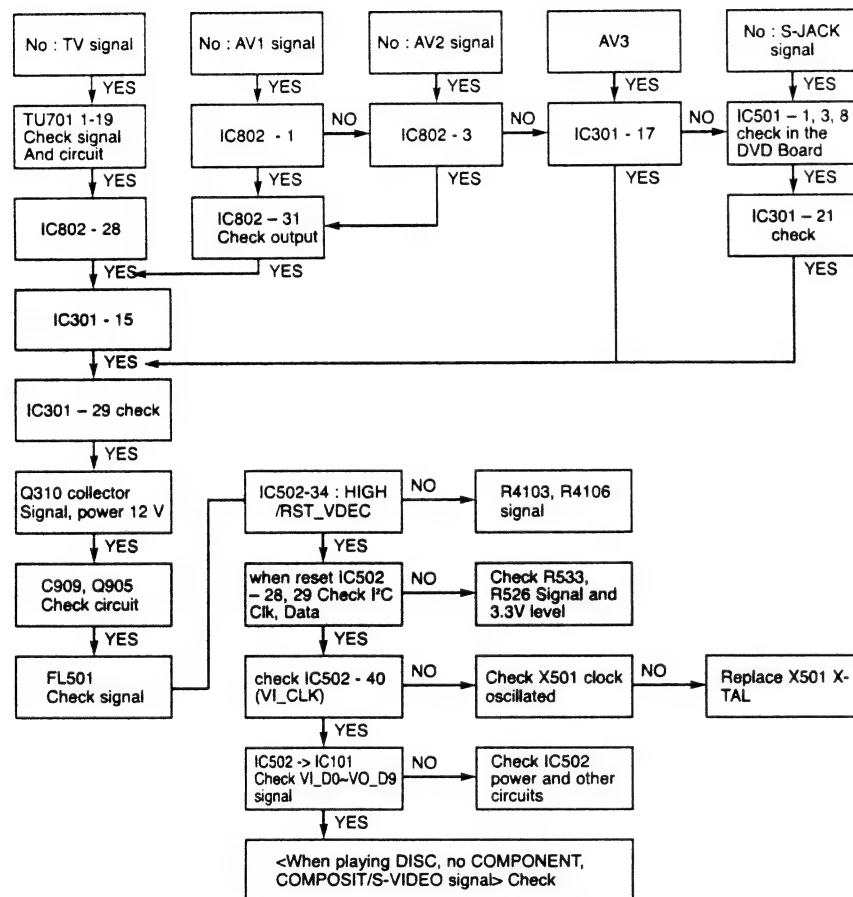
VDR ELECTRICAL TROUBLESHOOTING GUIDE

3. No COMPOSITE / S-VIDEO signal when playing DISC



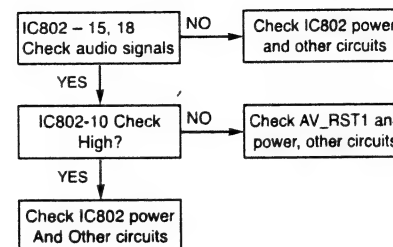
VDR ELECTRICAL TROUBLESHOOTING GUIDE

4. No TV, External Input video signal

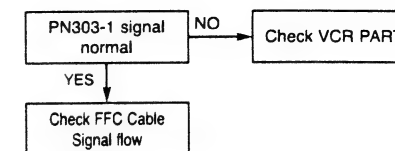


VDR ELECTRICAL TROUBLESHOOTING GUIDE

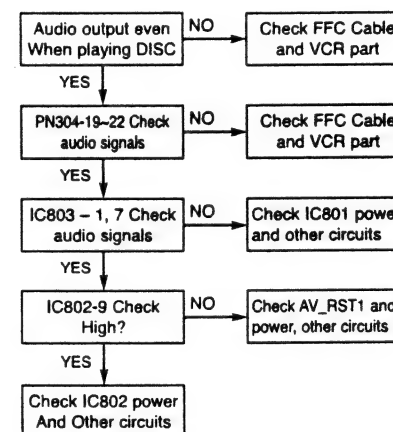
5. When playing DISC, no audio output



7. No OPTICAL / DIGITAL output

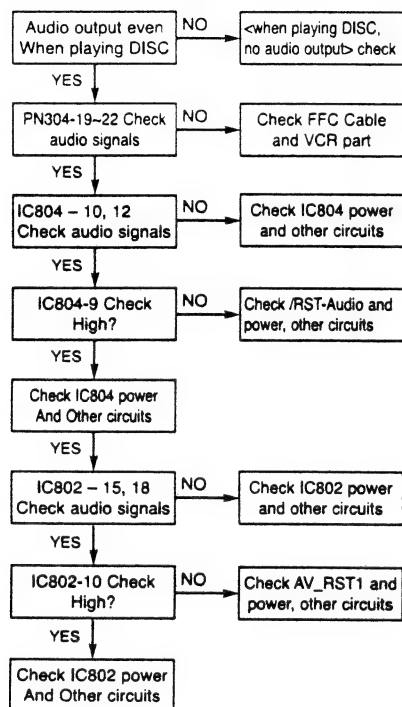


6. No TUNER audio output

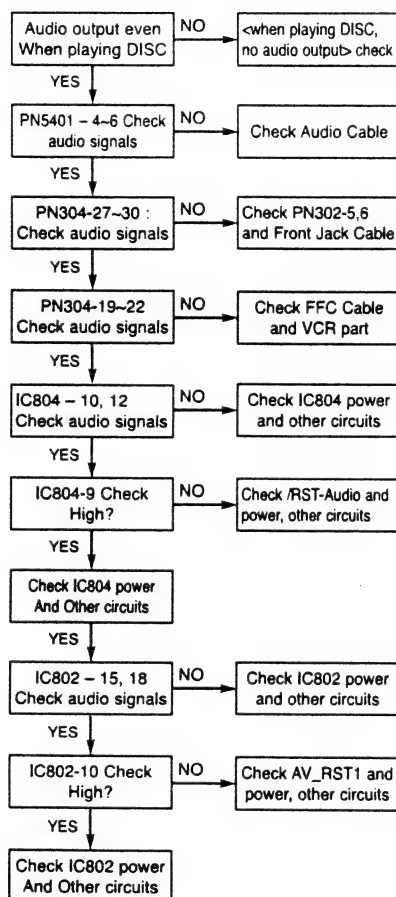


VDR ELECTRICAL TROUBLESHOOTING GUIDE

8. No External Input 1, 2 audio

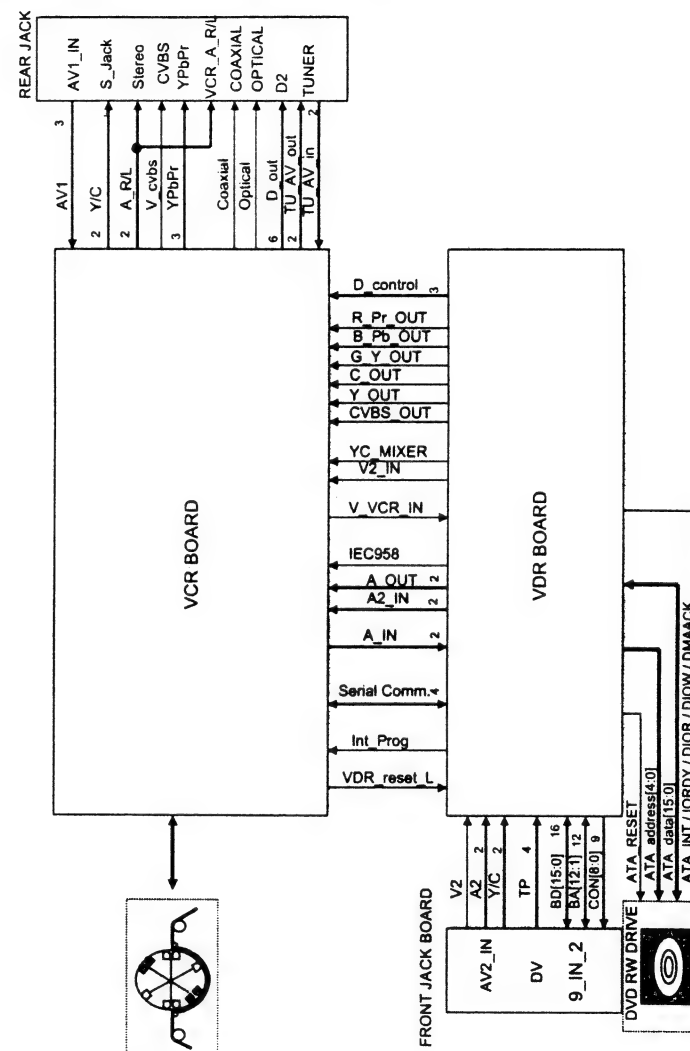


9. No External Input 3 audio

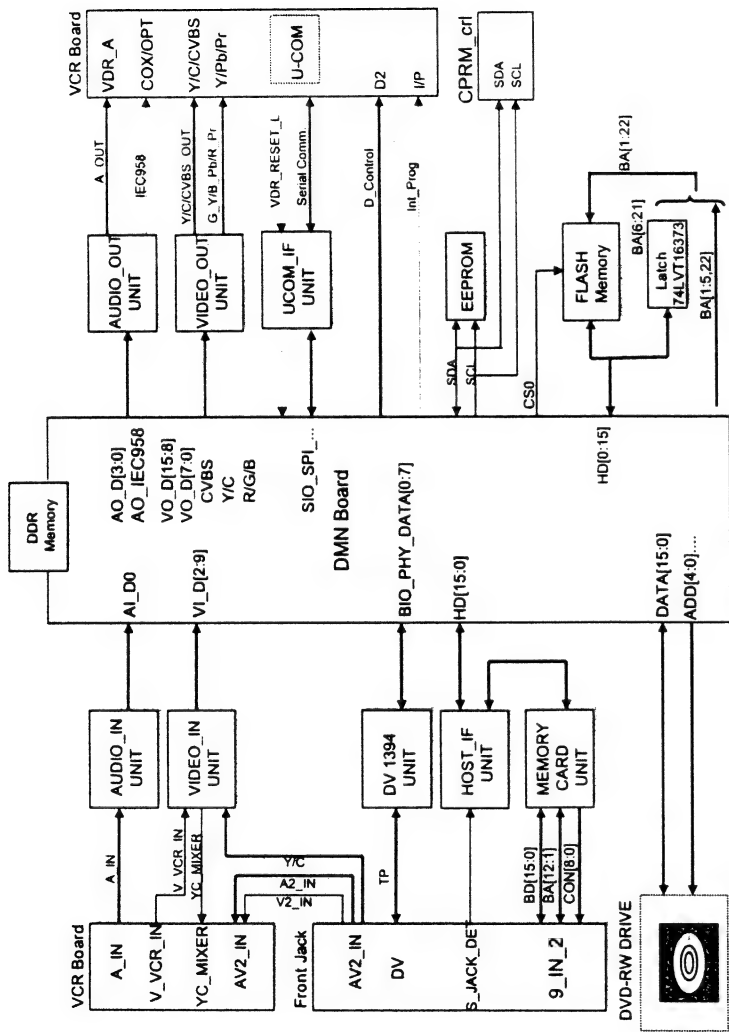


BLOCK DIAGRAMS

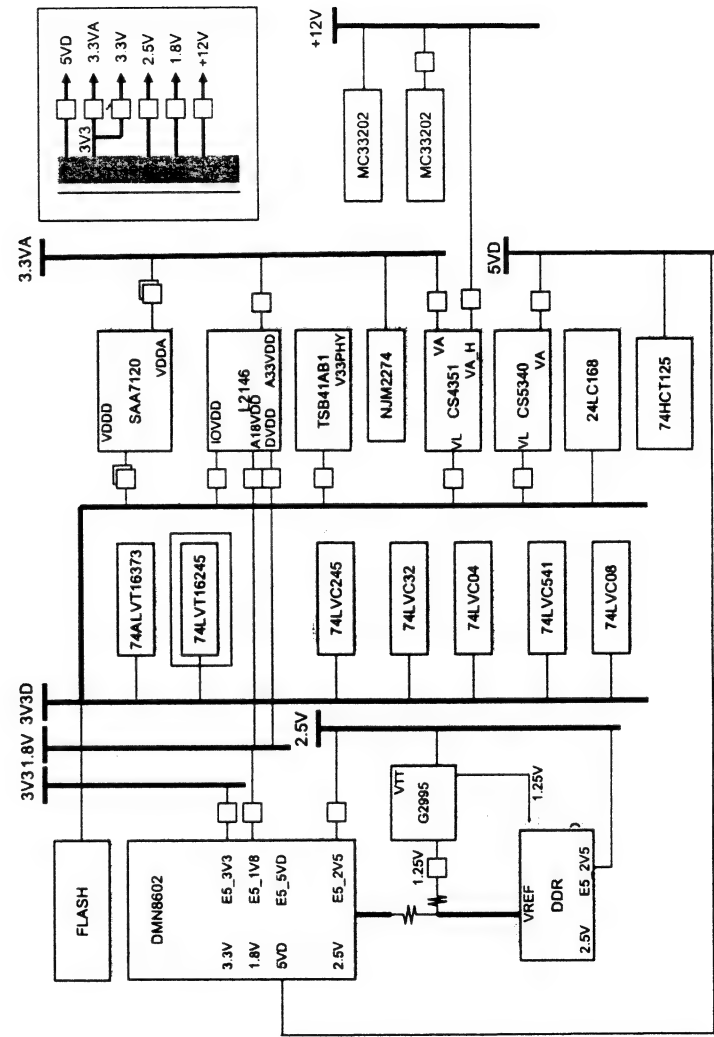
1. VDR SET TOTAL BLOCK DIAGRAM



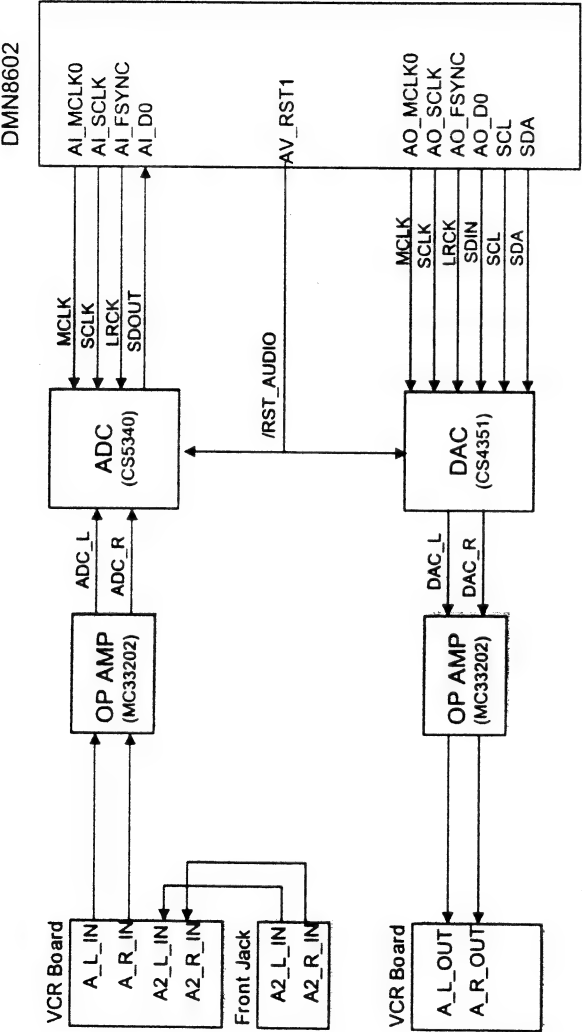
2. VDR MAIN H/ W BLOCK DIAGRAM



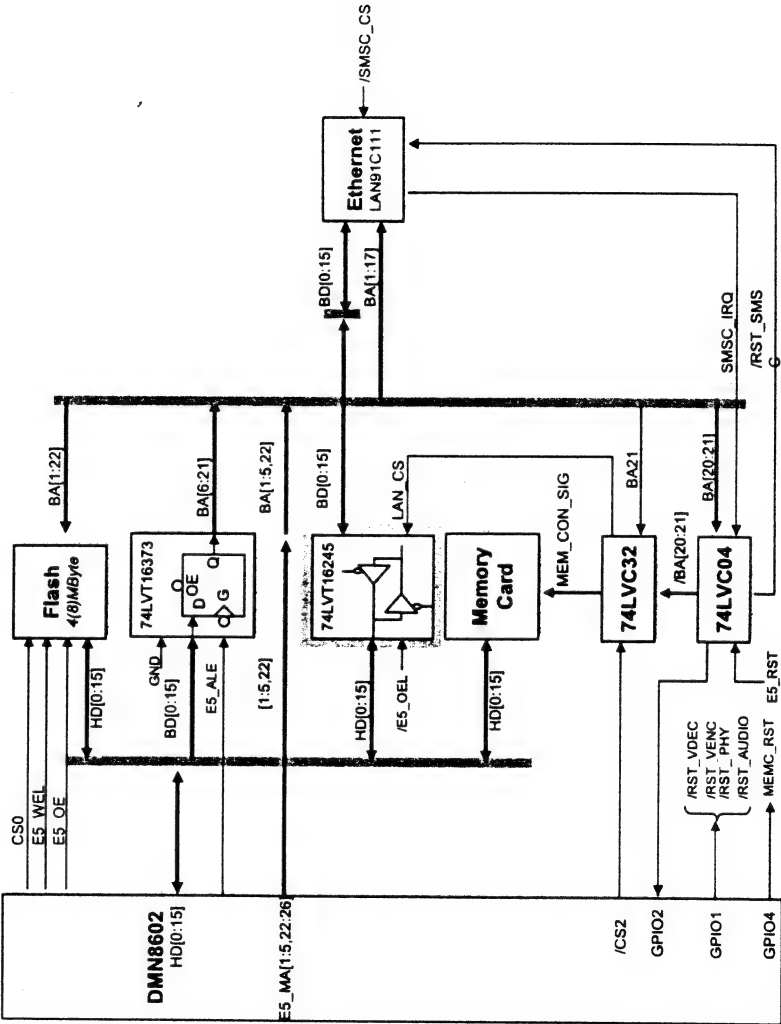
3. POWER BLOCK DIAGRAM



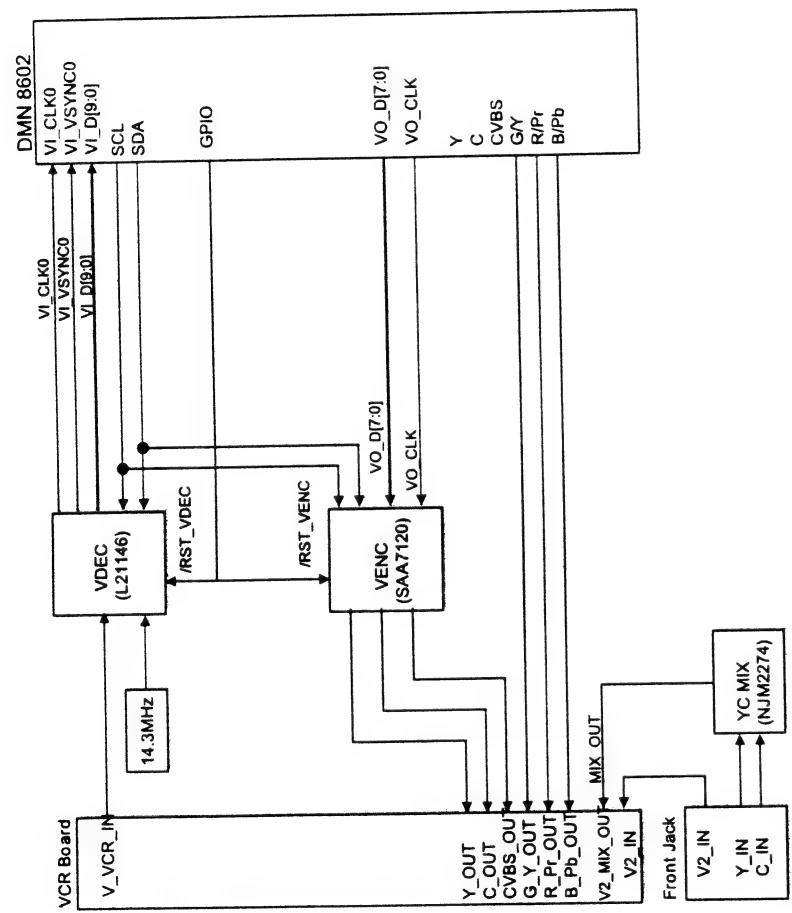
4. AUDIO IN/ OUT BLOCK DIAGRAM



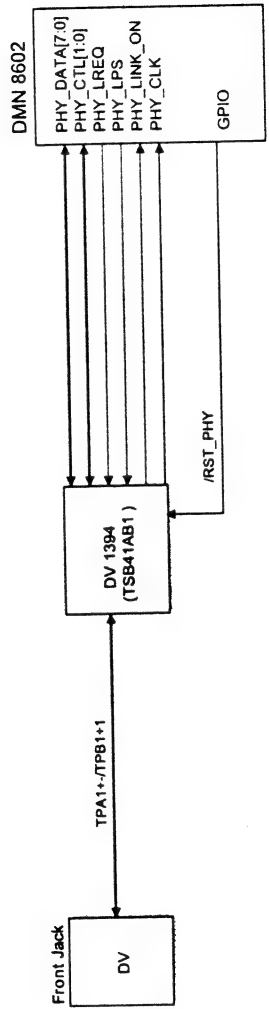
5. CPU & CONTROL REGISTER BLOCK DIAGRAM



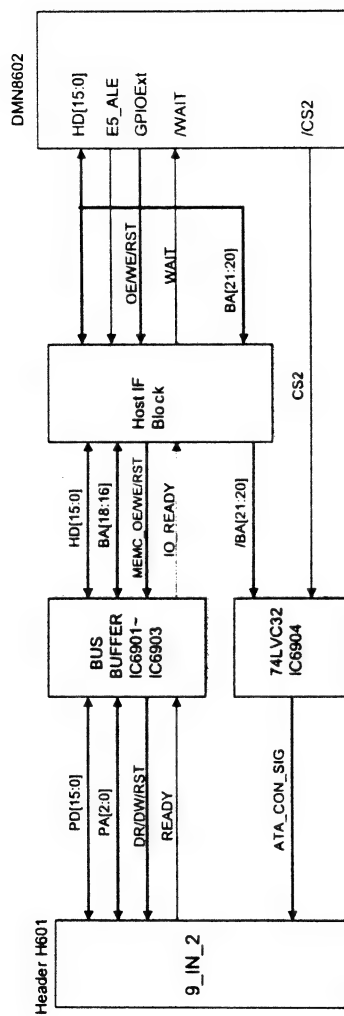
6. VIDEO IN/ OUT BLOCK DIAGRAM



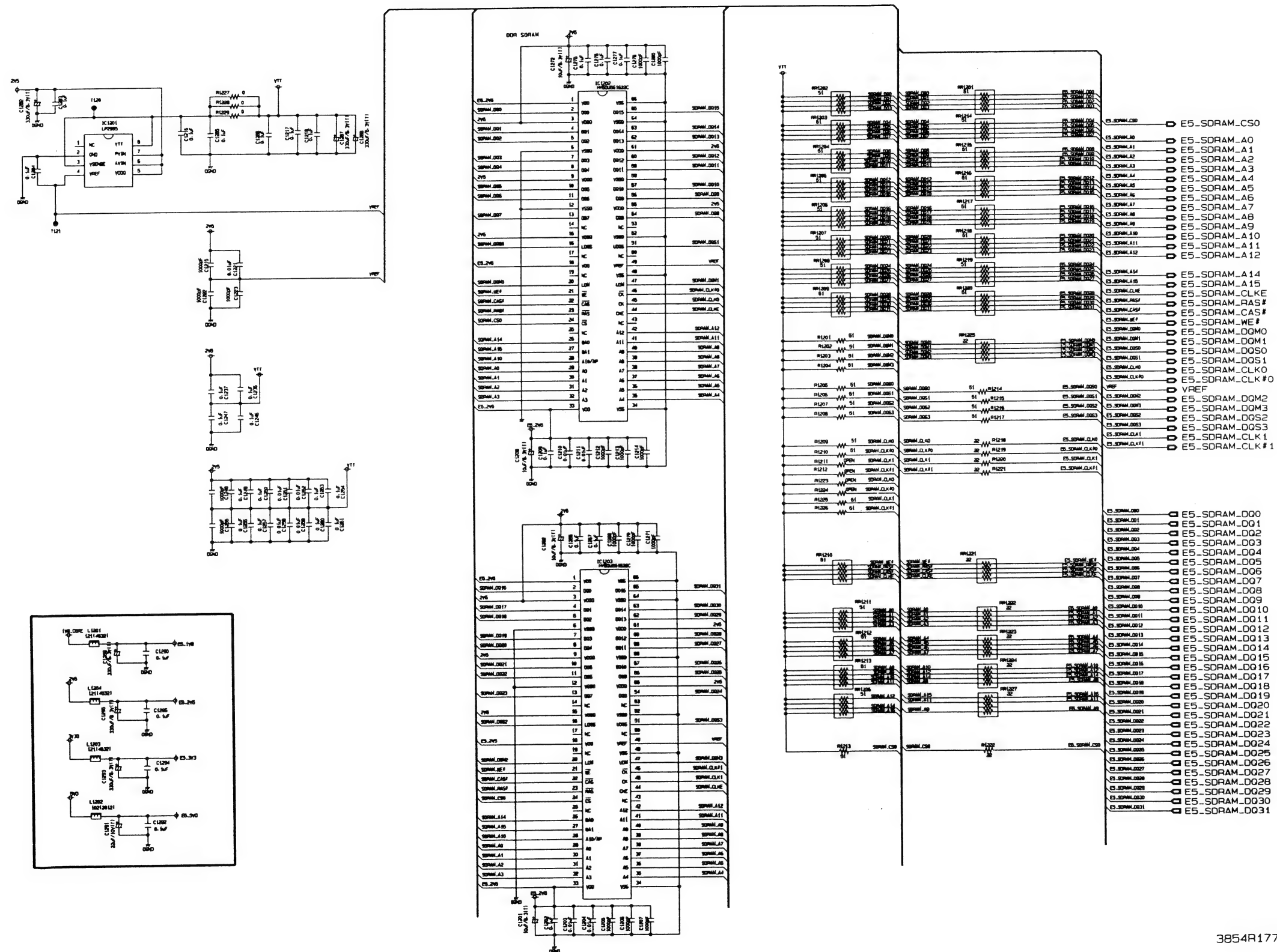
7. DV 1394 IN/OUT BLOCK DIAGRAM



MEMO



2. DDR & B TO B CONNECTOR CIRCUIT DIAGRAM



1. BGA 308P CIRCUIT DIAGRAM

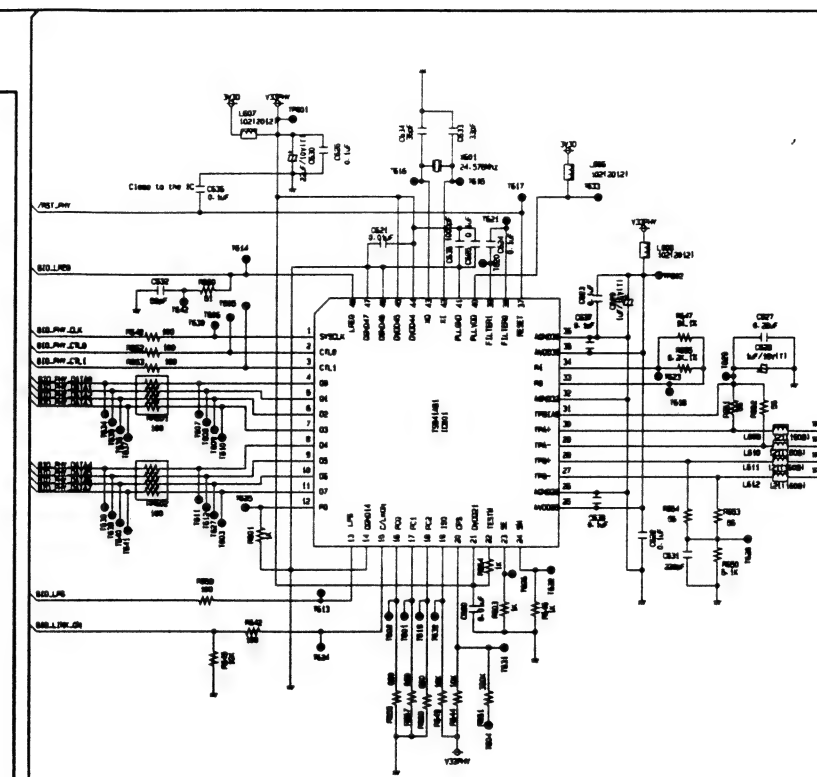
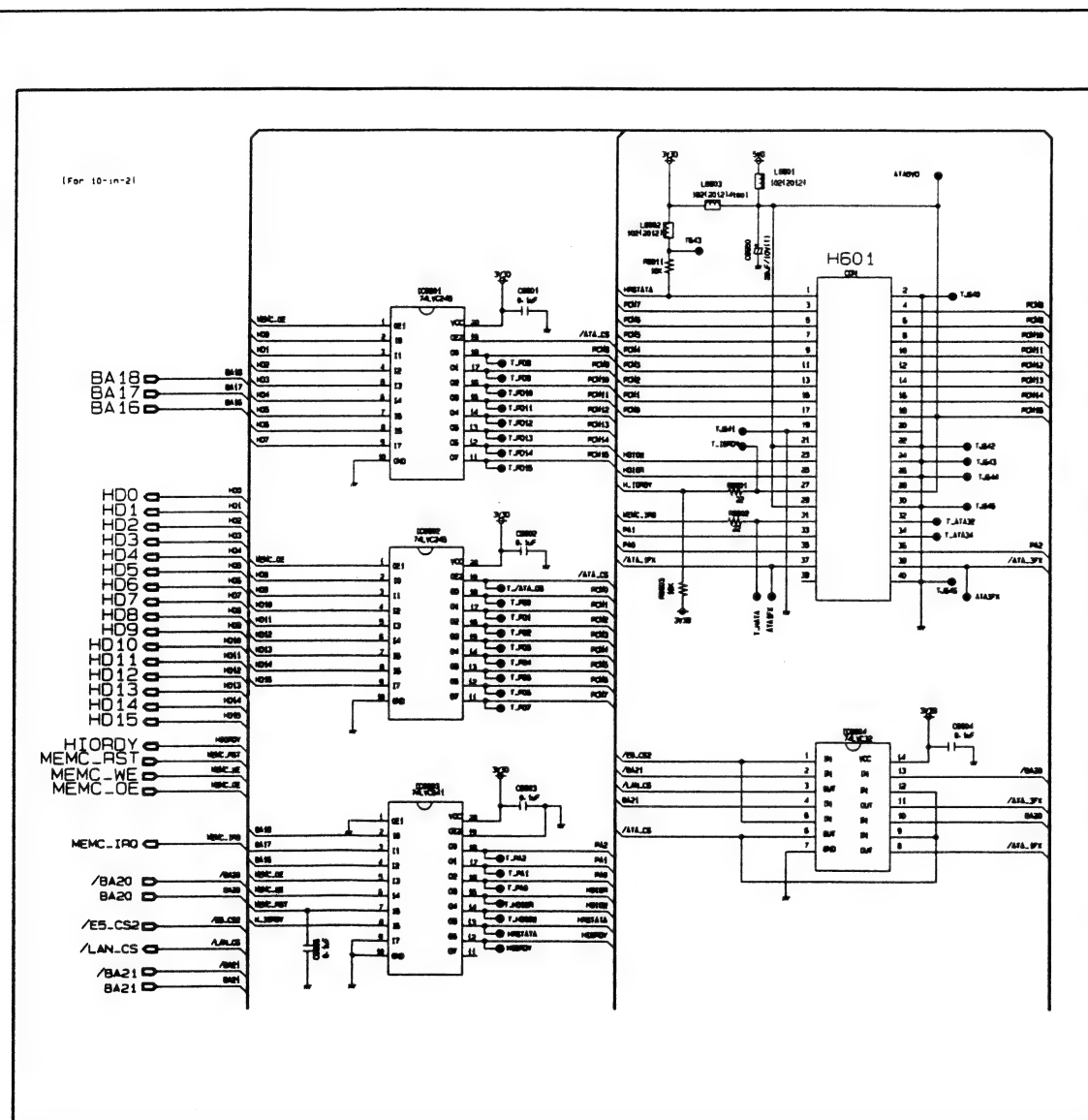


2



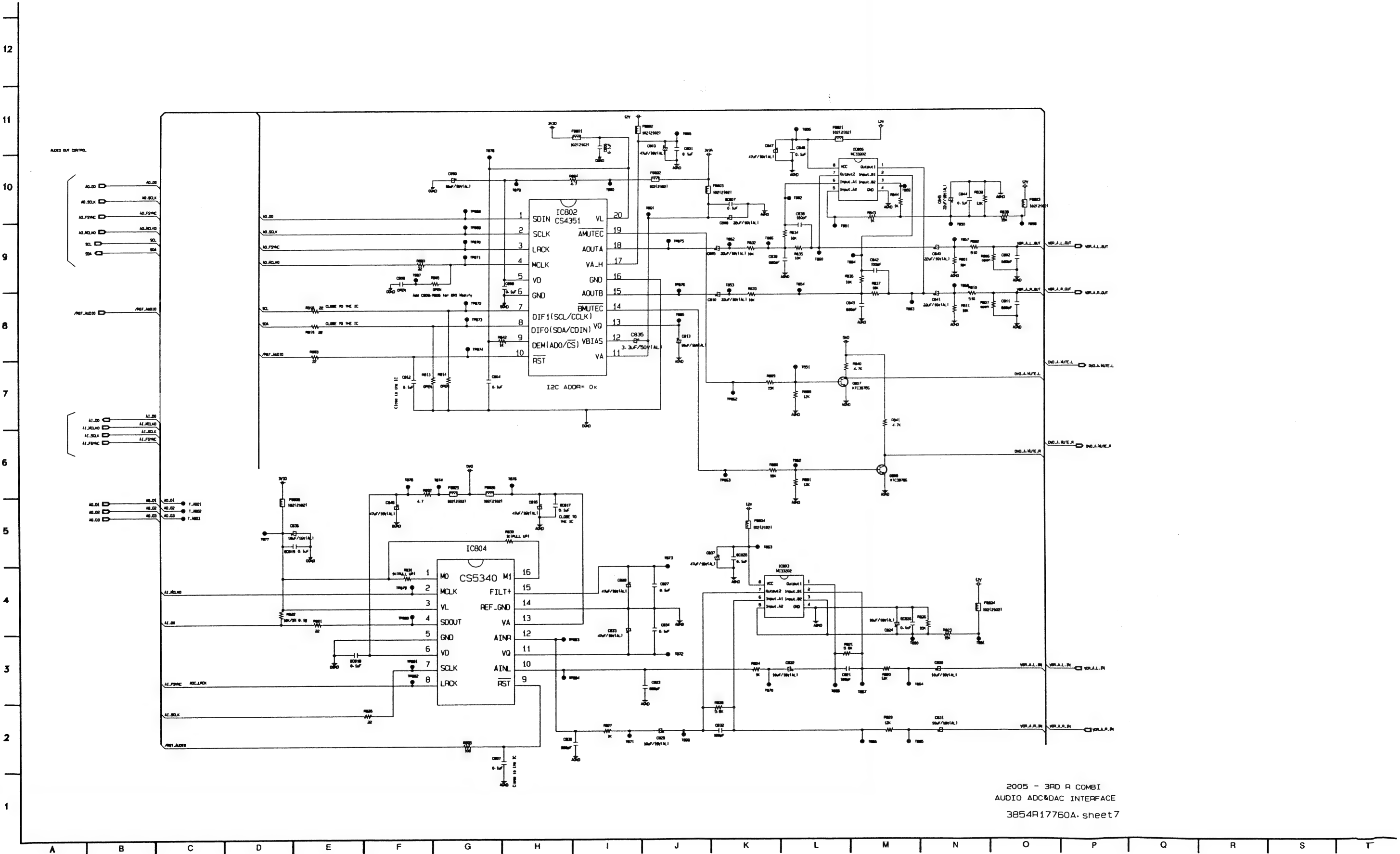


1

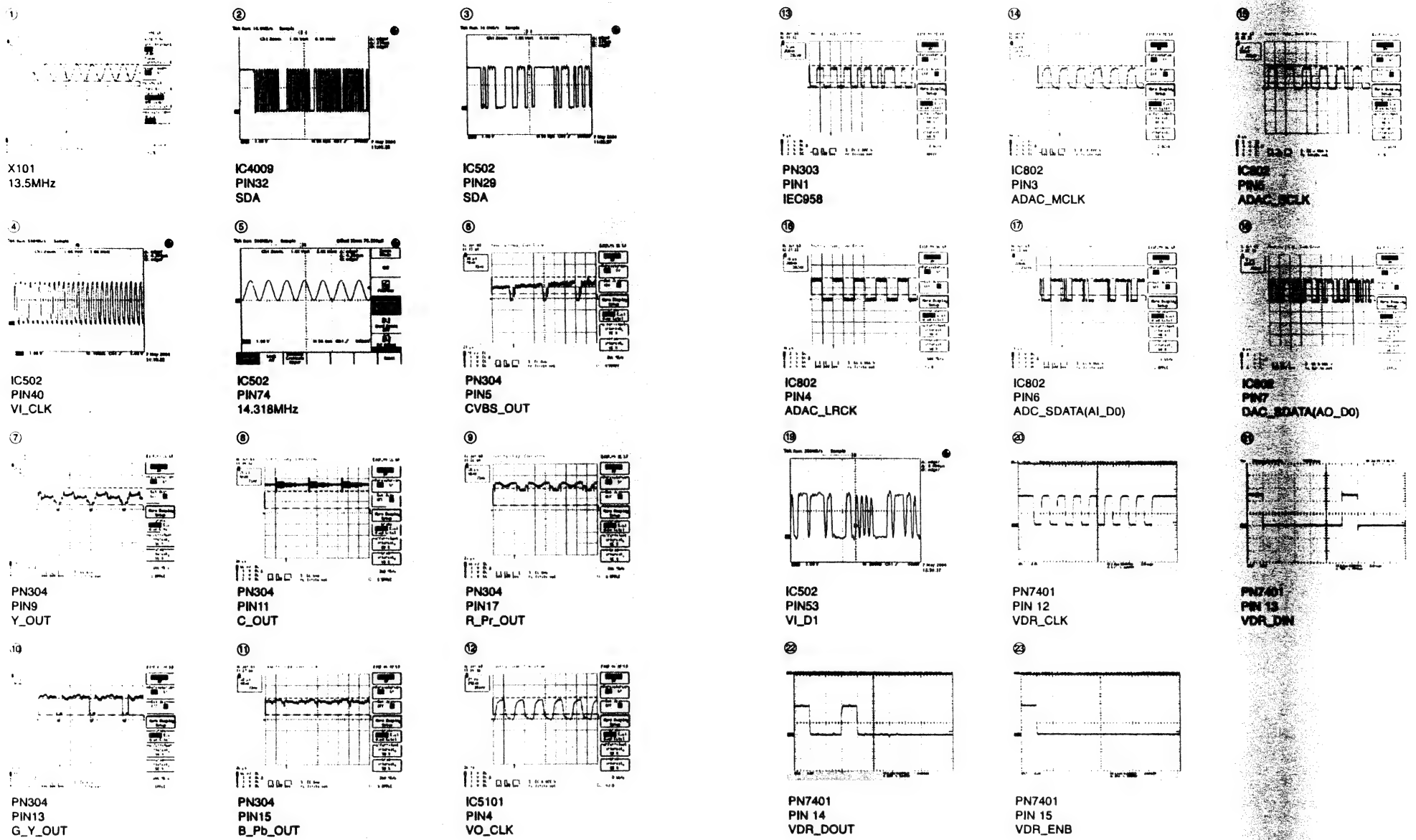


3854R17760A. sheet6

7. AUDIO IN/OUT CIRCUIT DIAGRAM



• WAVEFORMS



3-98

3-99

• CIRCUIT VOLTAGE CHART

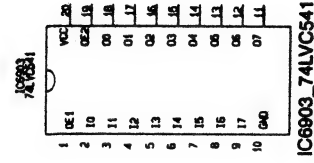
MODE PIN NO.	EE	PB	REC	MODE PIN NO.	EE	PB	REC	MODE PIN NO.	EE	PB	REC	MODE PIN NO.	EE	PB	REC	MODE PIN NO.	EE	PB	REC	MODE PIN NO.	EE	PB	REC	MODE PIN NO.	EE	PB	REC	MODE PIN NO.	EE	PB	REC	
IC1201				16	0.19	0.19	0.19	22	0	0.04	0.04	28	3.24	3.254	3.253	2	0	0.004	0.006	3	3.24	3.18	1.68	29	3.12v	3.08	1.81	1	1.32	1.322	1.325	
1	0	0	0	17	0.19	0.19	0.19	23	0	3.29	3.29	29	3.22	3.255	3.25	4	3.24m	0.314	0.321	5	2.24	2.82	1.64	30	3.12v	3.12v	1.81	2	23.24	3.12	2.5	
2	0	0	0	18	3.29	3.29	3.29	24	0	0	0	30	0	0.954	0.978	6	0	0.397	0.402	7	3.16	3.14	1.65	31	3.12	3.09v	1.82	3	3.24	3.185	3.165	
3	1.02	1.02	1.23	19	0.19	0.19	0.19	25	0	0.01	0.01	31	1.7	1.855	1.852	8	3.22	3.091	3.224	9	3.22	3.24	4.94	32	0	0	0	4	0	0	0	
4	1.02	1.01	1.23	20	0	0.19	0.19	26	0	0	0	32	0	0	0	10	3.24	3.079	3.204	11	3.22	3.24	1.64	33	0	0	0	5	0	0.008	0.008	
5	2.37	2.48	2.47	21	0	0	0	27	0	0	0	33	0	0	0	11	3.24	3.079	3.204	12	3.22	3.24	0	34	1.34	1.34	1.21	6	0	0.007	0.006	
6	2.34	2.48	2.47	22	0.19	0.19	0.19	28	0	0	0	34	3.22	3.254	3.252	12	2.88	1.381	1.492	13	3.22	3.24	4.94	35	3.24	3.24	3.28	7	0	0	0	
7	2.34	2.48	2.47	23	0	0.19	0.19	29	0	0	0	35	0	1.029	0.984	14	1.36	1.423	1.422	14	3.22	3.24	4.94	36	0	0	0	8	0	0	0	
8	1.08	1.22	1.22	24	3.28	3.29	3.29	30	0	0	0	36	0	1.029	0.922	15	0	20mv	1.122	15	3.24	3.24	3.25	37	3.24	3.1	3.28	9	0	0	0	
IC302				25	3.29	3.29	3.29	31	0	3.29	3.29	37	0	0	0	16	0	0.005	0.01	16	1.22	1.12	3.25	38	0	1.48	0	10	0	0.004	0.004	
1	0	0	0	26	0	0	0	32	0	0	0	38	3.24	3.252	3.252	17	0	0.004	0.009	17	12.2v	3.36	0.01	39	1.34	3.22	1.4	11	0	0.004	0.004	
2	3.14	3.29	3.27	27	0	0	0	33	0	0	0	39	0	0	0	18	2.04	1.628	1.616	18	14.2v	1.2	3.25	40	3.28	3.28	3.28	12	0	0.004	0.004	
3	4.88	4.96	4.96	28	0	0	0	34	0	0	0	40	2.54	1.568	1.568	19	0	0.008	0.008	19	4.28	0	2.42	41	0	3.22	0	13	0	0.004	0.004	
4	0	0	0	29	0	0	0	35	0	0	0	41	1.78	1.855	1.854	20	3.21	3.232	3.186	20	0	14.2	2.49	42	1.48	1.48v	1.48	14	0	0.004	0.004	
5	0	0	0	30	0	0	0	36	0	0	0	42	90m	0	0	21	3.16	3.206	3.16	21	14.2v	12.1	2.41	43	1.48	1.48v	1.48	15	0	0.004	0.004	
6	4.88	0.01	0.01	31	3.29	3.29	3.29	37	0	0	0	43	3.08	1.642	1.642	22	3.18	3.229	3.183	22	4.34	4.34	2.41	44	2.88	3.24	3.28	16	0	0.004	0.004	
7	0	0	0	32	0	0	0	38	0	0	0	44	2.88	1.643	0.199	23	3.22	1.57	1.812	23	14.2v	1.2	2.48	45	3.24	3.24	3.28	17	0	0.004	0.004	
8	4.94	3.97	3.97	33	0	0	0	39	0	0	0	45	2.88	0.399	0.405	24	2.82	0.969	1.068	24	4.34	4.34	2.41	46	0	0	0	18	0	0.004	0.004	
9	3.22	2.84	2.84	34	0	0	0	40	0	0	0	46	2.92	1.299	1.303	25	2.82	1.316	0.996	25	4.79	4.78	4.79	47	0	0	0	19	0	0.004	0.004	
10	0	0	0	35	0	0	0	41	0	0	0	47	2.88	0.369	0.37	26	2.88	1.381	1.492	26	4.91	4.79	4.79	48	2.88	3.24	3.28	20	0	0.004	0.004	
11	4.88	4.2	4.2	36	0	0	0	42	3.16	3.29	3.29	48	3.24	3.252	0.252	27	2.9	0.982	1.152	27	2.52	2.51	2.51					21	0	0.004	0.004	
12	4.96	4.3	4.3	37	0	0	0	43	0	0	0	49	0	0	0	28	3.26	1.25	1.092	28	2.52	2.51	2.51					22	0	0.004	0.004	
13	0	0	0	38	0	0	0	44	0	0	0	50	2.84	0.372	0.378	29	3.28	1.232	1.07	29	2.42	2.41	2.41					23	0	0.004	0.004	
14	4.84	4.97	4.97	39	0	0	0	45	0	0	0	51	2.64	0.369	0.379	30	2.96	1.206	1.111	30	2.42	2.41	2.41					24	0	0.004	0.004	
IC402				40	0	0	0	46	0	0	0	52	2.84	0.382	0.372	31	3.22	3.246	3.183	31	2.52	2.52	2.51					25	0	0.004	0.004	
1	3.14v	3.29	3.29	41	0	0	0	47	0	0	0	53	2.84	0.392	0.397	32	0	0.006	0.005	32	4.89	4.88	4.89					26	0	0.004	0.004	
2	3.14v	3.32	3.32	42	3.29	3.28	3.29	48	0	0	0.01	54	2.84	1.855	0.382	33	0	0.262	0.18	33	1	2.64	2.64	1.62					27	0	0.004	0.004
3	3.14v	3.29	3.29	43	0	0	0	IC501				55	1.28	0.39	1.852	34	3.24	3.246	3.192	34	3.42	3.52	1.06					28	0	0.004	0.004	
4	0.04	0.04	0	44	0	0	0	1	0	0.001	0.001	56	20m	1.855	0	35	0	0.006	0.007	35	3.42	3.52	1.06					29	0	0.004	0.004	
5	0	0.04	0	45	0	0	0	2	0	0.002	0.004	57	3.24	0	0.868	36	0	0.006	0.007	36	3.42	3.52	1.06					30	0	0.004	0.004	
6	0	0	0	46	0	2.82	0	3	0	0	0	58	0	1.059	0.7	37	0	0.006	0.008	37	3.42	3.52	1.06					31	0	0.004	0.004	
7	0	0	0	47	0	2.82	0	4	3.22	3.258	3.255	59	0	1.056	0.759	38	1.06	0.941	0.943	38	3.42	3.52	1.06					32	0	0.004	0.004	
8	3.14	3.29	3.29	48	3.29	3.29	3.29	5	3.22	3.258	3.255	60	0	1.05	0.716	39	3.24	3.215	3.19	39	3.42	3.52	1.06					33	0	0.004	0.004	
9	3.14	5.09	5.9	IC405				6	0	0	0	61	3.24	3.253	3.252	40	0	0.006	0.008	40	3.42	3.52	1.06					34	0	0.004	0.004	
10	3.14	3.29	3.29	1	0	0	0	7	0	0.002	0.002	62	0	0	0.099	41	1.06	0.827	0.91	41	3.42	3.52	1.06					35	0	0.004	0.004	
11	3.14	3.29	3.29	2	0	0.04	0.04	8	0	0.001	0.002	63	0	0.944	1.004	42	3.24	3.216	3.197	42	3.42	3.52	1.06					36	0	0.004	0.004	
12	4.98	5.09	5.09	3	0	0.04	0.04	9	0	0.001	0.002	64	0	0.965	0.969	43	0	0.006	0.019	43	3.42	3.52	1.06					37	0	0.004	0.004	
13	3.14	3.29	3.29	4	0	0	0	10	0	0	0	65	0	0.879	0.93	44	3.24	3.216	3.194	44	3.42	3.52	1.06					38	0	0.004	0.004	
14	3.14	3.29	3.29	5	0	3.29	3.29	11	1.78v	1.854	1.851	66	0	0.943	1.034	45	0	0.006	0.006	45	3.42	3.52	1.06					39	0	0.004	0.004	
IC405				6	0	3.29	3.29	12	1.78	1.854	1.851	67	1.78	1.856	1.852	46	0	0.006	0.006	46	3.42	3.52	1.06					40	0	0.004	0.004	
1	3.26	3.28	3.29	7	3.14	3.29	3.29	13	0	0	0	68	0	0	0	47	0	0.007	0.008	47	3.42	3.52	1.06					41	0	0.004	0.004	
2	3.31	0.19	0.19	8	0	0.04	0.04	14	1.78	1.854	1.851	69	0	0	0	48	0	0.006	0.006	48	3.42	3.52	1.06					42	0	0.004	0.004	
3	3.22	0.19	0.19	9	0	0.04	0.04	15	0	0	0	70	3.18	1.022	1.054	49	0	0.006	0.006	49	3.42	3.52	1.06					43	0	0.004	0.004	
4	0	0	0	10	0	0	0	16	0	0.002	0.002	71	0	1.53	1.53	50	3.24	3.207	3.19	50	3.42	3.52	1.06					44	0	0.004	0.004	
5	0.19	0.19	0.19	11	0	0.04	0.04	17	0	0.001	0	72	0	2.942	2.942	51	0	0.008	0.01	51	3.42	3.52	1.06					45	0	0.004	0.004	
6	0.19	0.19	0.19	12	0	0.0.																										

1. VDR P.C.BOARD(TOP VIEW)

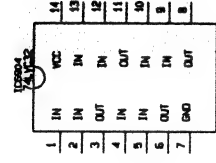




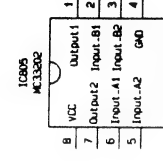
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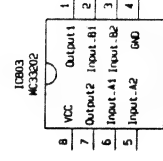
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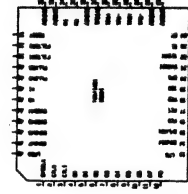
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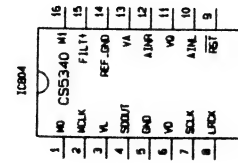
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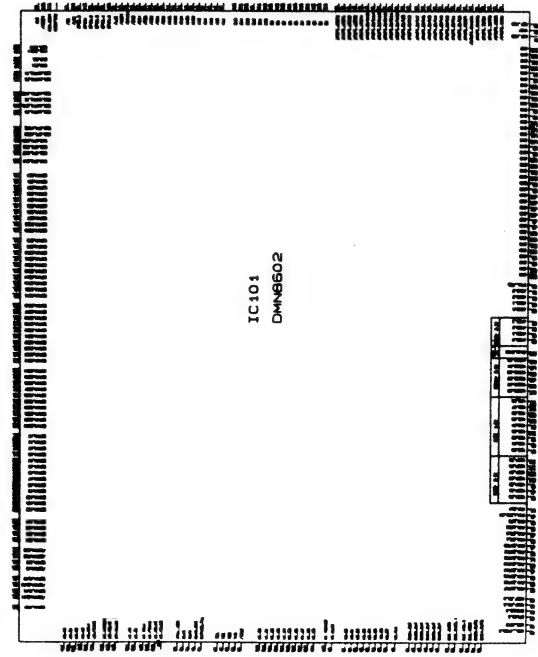


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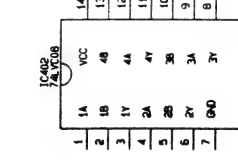


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• IC BLOCK DIAGRAMS



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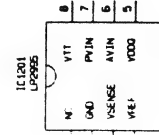
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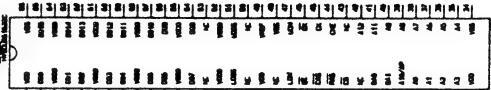
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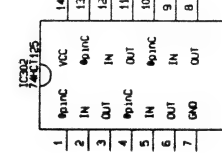
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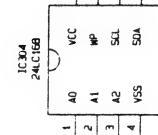
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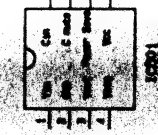
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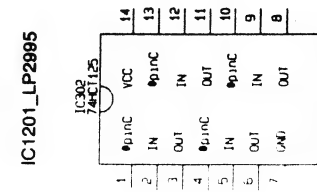
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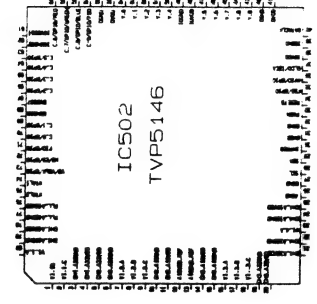
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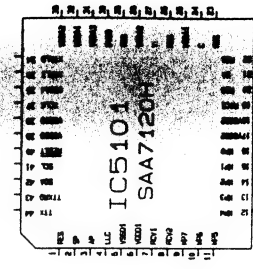
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IC5101_SAA7120H

LOCATION GUIDE

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BC817H3	C404	C5	C831	H2	LD301	H4	R153	F4	R448	F6	R601	D7	RR1203	D3	T441	F6	T542	H6	T864	I2	
BC818H3	C411	B4	C833	H3	PN301	H4	R154	D4	R449	F6	R603	C7	RR1204	E3	T442	A4	T543	H6	T865	H2	
BC819I3	C412	B5	C834	H3	PN302	A6	R155	D4	R450	F6	R642	D7	RR1205	E3	T444	F6	T544	H6	T872	H3	
BC825H2	C423	C3	C835	G3	PN303	B1	R159	D4	R451	F6	R644	D7	RR1206	E3	T445	F6	T546	H7	T873	I3	
BC826H2	C502	H6	C836	I3	PN304	G1	R163	D4	R452	E6	R645	D7	RR1207	E3	T446	F6	T547	H7	T875	H4	
C104	F5	C504	F1	C837	I2	PN305	I6	R165	D4	R453	E6	R646	C7	RR1210	D2	T447	E6	T548	H7	T876	H3
C105	F5	C505	F1	C840	G2	R101	F4	R169	A5	R454	E6	R647	C6	RR1211	D2	T448	F6	T549	H7	T877	I3
C109	E5	C507	F1	C841	G2	R102	F4	R301	B4	R455	E6	R648	D6	RR1223	D3	T449	F6	T556	G7	T878	H3
C1209	E2	C508	F1	C842	G2	R103	F4	R302	B4	R456	E6	R649	D7	RR1224	D3	T450	F6	T562	G6	T881	G2
C1210	E2	C509	H6	C844	H2	R104	F4	R303	B4	R457	F6	R650	C6	RR1225	E3	T451	E6	T565	G7	T885	G3
C1213	E3	C510	G6	C845	H2	R105	F4	R304	B4	R458	F6	R651	C6	RR1226	D2	T452	C5	T566	G7	T887	H4
C1214	E3	C515	H7	C847	G2	R106	F4	R305	B4	R459	E6	R652	C6	RR1227	D3	T454	C5	T569	G7	T889	G2
C1215	F2	C516	H6	C848	G2	R107	F4	R306	B4	R460	E6	R653	C6	RR501	G7	T462	C5	T601	D7	T890	H2
C1216	F2	C517	H7	C849	H4	R112	F4	R311	C2	R461	E6	R654	C6	RR502	G7	T463	C5	T602	D7	TP504	G6
C1217	E2	C520	H6	C898	G3	R113	F4	R312	C2	R462	E6	R655	C6	RR601	D6	T464	C5	T603	D6	TP505	G6
C1218	F2	C5203	H7	C899	G4	R114	F4	R313	C2	R463	F6	R656	D7	RR602	D6	T465	C5	T604	D7	TP506	G6
C1222	F2	C522	H6	CON401	F7	R115	F4	R314	C2	R464	A4	R657	D7	SW401	C6	T466	F6	T605	D6	TP5106	I5
C1236	F3	C524	H7	D101	F5	R1201	D3	R319	A6	R465	B4	R658	D7	T111	D4	T467	E6	T606	D6	TP512	G7
C1237	F3	C525	H7	D102	F5	R1202	E2	R323	C2	R469	C5	R659	D7	T120	F2	T470	C5	T607	D6	TP513	G7
C1246	F3	C527	H6	D401	B5	R1203	E2	R337	H4	R470	B5	R660	D6	T2A408	E6	T471	B5	T608	D6	TP514	G7
C1247	F3	C534	H7	FB801	H3	R1205	D3	R338	C2	R474	C5	R661	D7	T2B40F	26	T472	C5	T609	D6	TP515	G7
C1261	D3	C541	H7	H101	C3	R1206	E3	R361	A5	R476	C5	R662	D6	T2B40E	36	T484	G7	T610	D6	TP516	G7
C1272	F2	C620	C7	H301	B2	R1207	E3	R365	I6	R493	E6	R663	D6	T2B40E	46	T507	G6	T611	D6	TP517	G7
C1278	F3	C627	C6	H601	A3	R1209	E2	R366	I6	R504	G1	R664	C7	T3115	I6	T508	G6	T612	D6	TP518	I5
C1280	F3	C628	C6	IC101	E4	R121	F4	R367	I6	R505	H7	R6901	A4	T3116	I6	T509	G6	T613	D7	TP521	I5
C1284	F2	C631	C6	IC1201	F2	R1210	E2	R369	I6	R506	H7	R6902	A5	T3117	I6	T510	G6	T614	D6	TP522	I5
C1285	F2	C632	D6	IC1202	D2	R1211	E3	R370	I6	R507	H6	R6903	A4	T328	C2	T5101	H6	T618	C6	TP532	I5
C1293	D5	C637	C6	IC1203	E2	R1212	E3	R371	I6	R508	G1	R801	G1	T329	C2	T5102	I6	T619	D7	TP874	G3
C1294	F5	C638	C6	IC301	C4	R1213	E2	R372	I6	R509	H6	R802	G1	T334	C2	T5103	I6	T622	C7	TP875	H3
C163	F5	C6903	A3	IC302	C2	R1214	E3	R404	C5	R5104	I5	R805	H4	T335	C2	T5104	H5	T623	C6	TP876	G3
C164	F5	C6904	A5	IC304	I6	R1215	E3	R409	A4	R5106	I5	R806	G1	T336	C2	T5105	I5	T624	D7	TP879	I3
C165	F4	C6905	A4	IC409	C5	R1216	E3	R4101	C5	R5108	I5	R807	G1	T337	C2	T5107	I5	T625	D7	T:ADD1	F4
C302	C2	C801	G3	IC501	F1	R1217	F3	R4102	C5	R5110	I5	R810	G1	T379	G6	T5108	H5	T626	C7	T:ADD2	F4
C304	G5	C802	G1	IC502	G6	R1218	E3	R4103	G7	R5111	I5	R811	G1	T382	G4	T5109	H5	T627	D6	T:ADD3	F4
C305	G4	C803	G3	IC5101	I5	R1219	E3	R4106	G7	R5112	I5	R820	H2	T387	C2	T511	G7	T628	C7	T:ATA32	A3
C306	G5	C805	H2	IC601	D6	R122	F5	R4107	G7	R5113	I5	R822	H3	T388	C2	T5110	H5	T630	D6	T:ATA34	A3
C307	I4	C806	H3	IC6901	B3	R1220	E3	R416	C5	R5114	I5	R825	H4	T401	F6	T5111	H5	T631	D7	T:DAC1	F5
C309	G5	C807	H3	IC6902	B2	R1221	E3	R420	C5	R5115	I5	R826	H2	T4124	C4	T5112	H5	T632	D7	T:DAC2	F5
C310	G4	C808	G3	IC6903	A4	R1222	E3	R426	A4	R5116	I5	R829	H2	T4125	C4	T5113	I5	T634	E6	T:DAC3	F5
C311	G5	C809	H4	IC6904	A5	R1223	E3	R436	F6	R5117	I5	R830	I3	T414	F6	T5114	I5	T635	E6	T:GND1	I4
C312	G5	C810	G2	IC802	G3	R1224	E3	R437	F6	R514	F1	R831	I3	T424	E6	T5115	I5	T636	E6	T:VCR:VIDEO	I4
C313	G5	C811	G1	IC803	H2	R1227	F2	R438	F6	R526	G7	R839	G2	T426	E6	T5116	H5	T637	E6	X101	E5
C314	G5	C812	G3	IC804	H3	R1228	F2	R439	F6	R529	H7	R843	G2	T427	E6	T5117	I5	T638	E6	X501	H6
C315	H5	C813	G3	IC805	G2	R1229	F2	R440	F6	R531	G7	R844	G2	T431	F6	T521	H7	T639	E6	X601	D6
C316	G5	C815	I3	L103	F5	R141	D4	R441	F6	R533	H7	R890	F4	T432	F6	T522	H7	T640	E6		
C317	G5	C820	H2	L107	E5	R142	D4	R442	F6	R538	G6	R891	H3	T433	F6	T525	G7	T641	F7		
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C320	H5	C827	I3	L306	G4	R150	F4	R445	F6	R541	G6	RR104	D4	T438	F6	T529	G7	T856	G2		
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/CS4	F5	C1257	F3	C162	F4	C543	C6	IC406	G2	R158	F4	R432	G2	R889	B3	T301	G5	T4103	H4	T504	C7	T869	B2	TJ369	I6	TP868	B4
/CS5	F5	C1258	F3	C163	F4	C544	C6	IC407	G2	R159	F4	R433	G2	R890	B3	T302	G5	T4104	H4	T505	C7	T870	B2	TJ370	I6	TP869	B4
/DIACK	F4	C1259	F3	C164	F4	C545	C6	IC408	G2	R160	F4	R434	G2	R891	B3	T303	G5	T4105	H4	T506	C7	T871	B2	TJ371	I6	TP870	B4
/UWE	F4	C1260	F3	C165	F4	C546	C6	IC409	G2	R161	F4	R435	G2	R892	B3	T304	H4	T4106	H4	T507	C7	T872	B2	TJ372	I6	TP871	B4
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ATAFX	F5	C1278	F3	C183	F4	C564	C6	IC427	G2	R179	F4	R453	H5	R910	C3	T322	G5	T4124	D6	T525	C7	T890	B2	TJ390	I6	TP889	C4
ATAFX	F5	C1279	F3	C184	F4	C565	C6	IC428	G2	R180	F4	R454	H5	R911	C3	T323	G5	T4125	D7	T526	C7	T891	B2	TJ391	I6	TP890	C3
ATAFX	F5	C1280	F3	C185	F4	C566	C6	IC429	G2	R181	F4	R455	H5	R912	C3	T324	G5	T4126	D6	T527	C7	T892	B2	TJ392	I6	TP891	C4
ATAFX	F5	C1281	F3	C186	F4	C567	C6	IC430	G2	R182	F4	R456	H5	R913	C3	T325	G5	T4127	D7	T528	C7	T893	B2	TJ393	I6	TP892	C3
ATAFX	F5	C1282	F3	C187	F4	C568	C6	IC431	G2	R183	F4	R457	H5	R914	C3	T326	G5	T4128	D6	T529	C7	T894	B2	TJ394	I6	TP893	C4
ATAFX	F5	C1283	F3	C188	F4	C569	C6	IC432	G2	R184	F4	R458	H5	R915	C3	T327	G5	T4129	D7	T530	C7	T895	B2	TJ395	I6	TP894	C3
ATAFX	F5	C1284	F3	C189	F4	C570	C6	IC433	G2	R185	F4	R459	H5	R916	C3	T328	G5	T4130	D6	T531	C7	T896	B2	TJ396	I6	TP895	C4
ATAFX	F5	C1285	F3	C190	F4	C571	C6	IC434	G2	R186	F4	R460	H5	R917	C3	T329	G5	T4131	D7	T532	C7	T897	B2	TJ397	I6	TP896	C3
ATAFX	F5	C1286	F3	C191	F4	C572	C6	IC435	G2	R187	F4	R461	H5	R918	C3	T330	G5	T4132	D6	T533	C7	T898	B2	TJ398	I6	TP897	C4
ATAFX	F5	C1287	F3	C192	F4	C573	C6	IC436	G2	R188	F4	R462	H5	R919	C3	T331	G5	T4133	D7	T534	C7	T899	B2	TJ399	I6	TP898	C3
ATAFX	F5	C1288	F3	C193	F4	C574	C6	IC437	G2	R189	F4	R463	H5	R920	C3	T332	G5	T4134	D6	T535	C7	T900	B2	TJ400	I6	TP899	C4
ATAFX	F5	C1289	F3	C194	F4	C575	C6	IC438	G2	R190	F4	R464	H5	R921	C3	T333	G5	T4135	D7	T536	C7	T901	B2	TJ401	I6	TP900	C3
ATAFX	F5	C1290	F3	C195	F4	C576	C6	IC439	G2	R191	F4	R465	H5	R922	C3	T334	G5	T4136	D6	T537	C7	T902	B2	TJ402	I6	TP901	C4
ATAFX	F5	C1291	F3	C196	F4	C577	C6	IC440	G2	R192	F4	R466	H5	R923	C3	T335	G5	T4137	D7	T538	C7	T903	B2	TJ403	I6	TP902	C3
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ATAFX	F5	C1293	F3	C198	F4	C579	C6	IC442	G2	R194	F4	R468	H5	R925	C3	T337	G5	T4139	D7	T540	C7	T905	B2	TJ405	I6	TP904	C3
ATAFX	F5	C1294	F3	C199	F4	C580	C6	IC443	G2	R195	F4	R469	H5	R926	C3	T338	G5	T4140	D6	T541	C7	T906	B2	TJ406	I6	TP905	C4
ATAFX	F5	C1295	F3	C200	F4	C581	C6	IC444	G2	R196	F4	R470	H5	R927	C3	T339	G5	T4141	D7	T542	C7	T907	B2	TJ407	I6	TP906	C3
ATAFX	F5	C1296	F3	C201	F4	C582	C6	IC445	G2	R197	F4	R471	H5	R928	C3	T340	G5	T4142	D6	T543	C7	T908	B2	TJ408	I6	TP907	C4
ATAFX	F5	C1297	F3	C202	F4	C583	C6	IC446	G2	R198	F4	R472	H5	R929	C3	T341	G5	T4143	D7	T544	C7	T909	B2	TJ409	I6	TP908	C3
ATAFX	F5	C1298	F3	C203	F4	C584	C6	IC447	G2	R199	F4	R473	H5	R930	C3	T342	G5	T4144	D6	T545	C7	T910	B2	TJ410	I6	TP909	C4
ATAFX	F5	C1299	F3	C204	F4	C585	C6	IC448	G2	R200	F4	R474	H5	R931	C3	T343	G5	T4145	D7	T546	C7	T911	B2	TJ411	I6	TP910	C3
ATAFX	F5	C1300	F3	C205	F4	C586	C6	IC449	G2	R201	F4	R475	H5	R932	C3	T344	G5	T4146	D6	T547	C7	T912	B2	TJ412	I6	TP911	C4
ATAFX	F5	C1301	F3	C206	F4	C587	C6	IC450	G2	R202	F4	R476	H5	R933	C3	T345	G5	T4147	D7	T548	C7	T913	B2	TJ413	I6	TP912	C3
ATAFX	F5	C1302	F3	C207	F4	C588	C6	IC451	G2	R203	F4	R477	H5	R934	C3	T346	G5	T4148	D6	T549	C7	T914	B2	TJ414	I6	TP913	C4
ATAFX	F5	C1303	F3	C208	F4	C589	C6	IC452	G2	R204	F4	R478	H5	R935	C3	T347	G5	T4149	D7	T550	C7	T915	B2	TJ415	I6	TP914	C3
ATAFX	F5	C1304	F3	C209	F4	C590	C6	IC453	G2	R205	F4	R479	H5	R936	C3	T348	G5	T4150	D6	T551	C7	T916	B2	TJ416	I6	TP915	C4
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ATAFX	F5	C1306	F3	C211	F4	C592	C6	IC455	G2	R207	F4	R481	H5	R938	C3	T350	G5	T4152	D6	T553	C7	T918	B2	TJ418	I6	TP917	C4
ATAFX	F5	C1307	F3	C212	F4	C593	C6	IC456	G2	R208	F4	R482	H5	R939	C3	T351	G5	T4153	D7	T554	C7	T919	B2	TJ419	I6	TP918	C3
ATAFX	F5	C1308	F3	C213	F4	C594	C6	IC457	G2	R209	F4	R483	H5	R940	C3	T352	G5	T4154	D6	T555	C7	T920	B2	TJ420	I6	TP919	C4
ATAFX	F5	C1309	F3	C214	F4	C595	C6	IC458	G2	R210	F4	R484	H5	R941	C3	T353	G5	T4155	D7	T556	C7	T921	B2	TJ421	I6	TP920	C3
ATAFX	F5	C1310	F3	C215	F4	C596	C6	IC459	G2	R211	F4	R485	H5	R942	C3	T354	G5	T4156	D6	T557	C7	T922	B2	TJ422	I6	TP921	C4
ATAFX	F5	C1311	F3	C216	F4	C597	C6	IC460	G2	R212	F4	R486	H5	R943	C3	T355	G5	T4157	D7	T558	C7	T923	B2	TJ423	I6	TP922	C3
ATAFX	F5	C1312	F3	C217	F4	C598	C6	IC461	G2	R213	F4	R487	H5	R944	C3	T356	G5	T4158	D6	T559	C7	T924	B2	TJ424	I6	TP923	C4
ATAFX	F5	C1313	F3	C218	F4	C599	C6	IC462	G2	R214	F4	R488	H5	R945	C3	T357	G5	T4159	D7	T560	C7	T925	B2	TJ425	I6	TP924	C3
ATAFX	F5	C1314	F3	C219	F4	C600	C6	IC463	G2	R215	F4	R489	H5	R946	C3	T358	G5	T4160	D6	T561	C7	T926	B2	TJ426	I6	TP925	C4
ATAFX	F5	C1315	F3	C220	F4	C601	C6	IC464	G2	R216	F4	R490	H5	R947	C3	T359	G5	T4161	D7	T562	C7	T927	B2	TJ427	I6	TP926	C3
ATAFX	F5	C1316	F3	C221	F4	C602	C6	IC465	G2	R217	F4	R491	H5	R948	C3	T360	G5	T4162	D6	T563	C7	T928	B2	TJ428	I6	TP927	C4
ATAFX	F																										

SECTION 4 MECHANISM OF VCR PART(D-37)

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TROUBLESHOOTING GUIDE

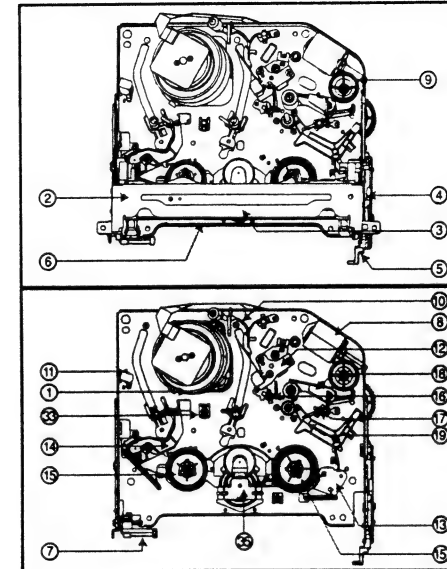
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EXPLODED VIEWS

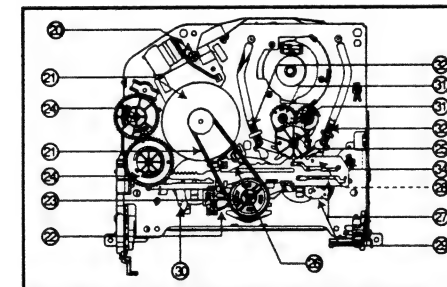
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POSITION DRAWING OF DECK MECHANISM PARTS

• Top View



• Bottom View



- (1) For assembly, check the assembly mode is accurate.
- (2) Parts firstly disassembled indicate parts firstly disassembled in disassembly of related parts.

Order Of Dis-assembly Parts (firstly Disassembled)	Part	Fixing Type	Ref. Draw-ings	Posi-tion
1	Drum Assembly	3 screws	A-1	T
2	Plate Top	2 hooks	A-2	T
2	Holder Assembly CST	6 chasses	A-2	T
2,3	4 Gear Assembly Rack F/L	1 hook	A-2	T
2,3,4	5 Opener Door	Chassis Hole	A-2	T
2,3,4,5	6 Arm Assembly F/L	Chassis Hole	A-2	T
	7 Lever Assembly S/W	Chassis Hole, 1 hook	A-2	T
	8 Motor Assembly L/D	1 screw	A-3	T
	9 Gear Wheel	2 hooks	A-3	T
	10 Arm Assembly Cleaner	Chassis Embossing	A-3	T
	11 Head F/E	Chassis Embossing	A-3	T
	12 Base Assembly A/C Head	1 screw	A-3	T
2,3	13 Brake Assembly T	1 hook	A-4	T
2,3	14 Arm Assembly Tension	1 hook	A-4	T
2,3,13,14	15 Reel S / Reel T	Shaft	A-4	T
	16 Base Assembly P4	Chassis Embossing	A-5	T
	17 Opener Lid	Chassis Embossing	A-5	T
17	18 Arm Assembly Pinch	Shaft	A-5	T
17	19 Arm Tap	1 hook	A-5	T
	20 Supporter, capstan	Chassis Hole	A-6	B
17,18	21 Belt Capstan/Motor Capstan	3 screws	A-6	B
	22 Lever F/R	Locking Tab	A-6	B
21, 22	23 Clutch Assembly D37	Washer	A-6	B
	24 Gear Drive/Gear Cam	Washer/Hook	A-7	B
	25 Gear Sector	Hook	A-7	B
21	26 Brake Assembly Capstan	Chassis Hole	A-7	B
21, 22, 23, 24, 25, 26	27 Plate Slider	Chassis Guide	A-7	B
21, 22, 23, 24, 25, 26, 27	28 Lever Tension	1 Hook	A-7	B
21, 22, 23, 24, 25, 26, 27	29 Lever Spring	1 Hook	A-7	B
21, 22, 23, 24, 25, 26, 27	30 Lever Brake	1 Hook	A-7	B
25	31 Gear Assembly P2/ Gear Assembly P3	Base	A-8	B
2, 3, 14, 25, 31	32 Base Assembly P2 /Base Assembly P3	6 Chasses	A-8	B
25, 31	33 Base Loading	3 Hooks	A-8	B
2,3,14	34 Base Tension	Chassis Embossing	A-9	T
	35 Arm Assembly Idler Jog	Locking Tab	A-9	T

T:Top, B:Bottom

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

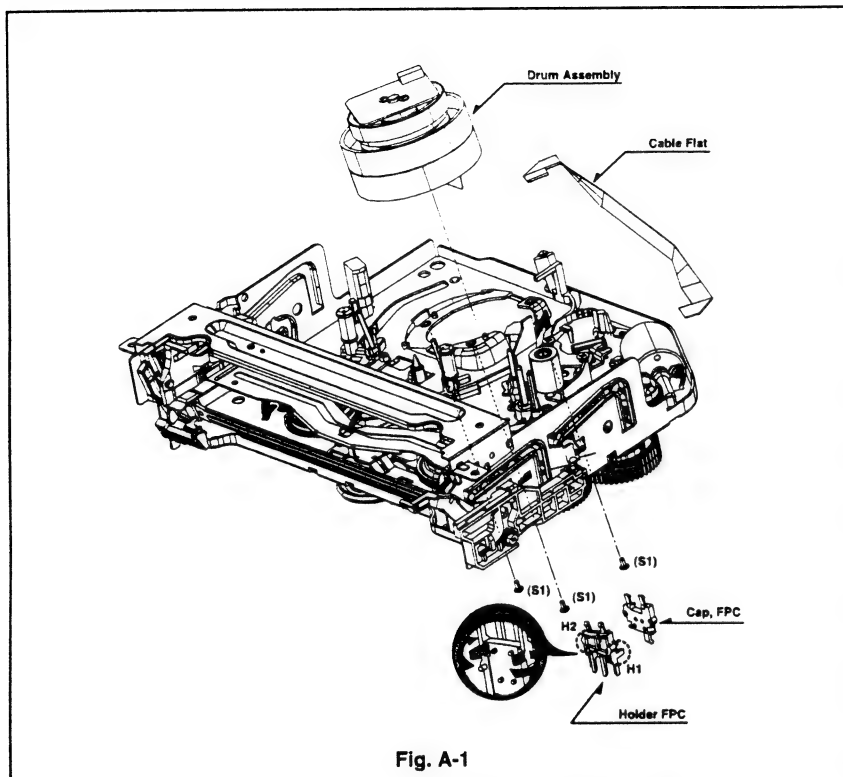
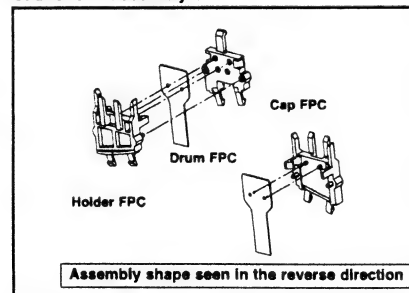


Fig. A-1

1. Disassembly of Drum Assembly (Figure A-1)

- 1) Separate cable flat from the Drum FPC and the Capstan Motor.
- 2) Release 3 screws (S1) on the bottom side of the chassis, and separate the drum assembly.
- 3) Release the hooks (H1, H2) and separate both the holder FPC and the Cap FPC (disassemble if necessary).

Cautions in assembly of FPC



DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

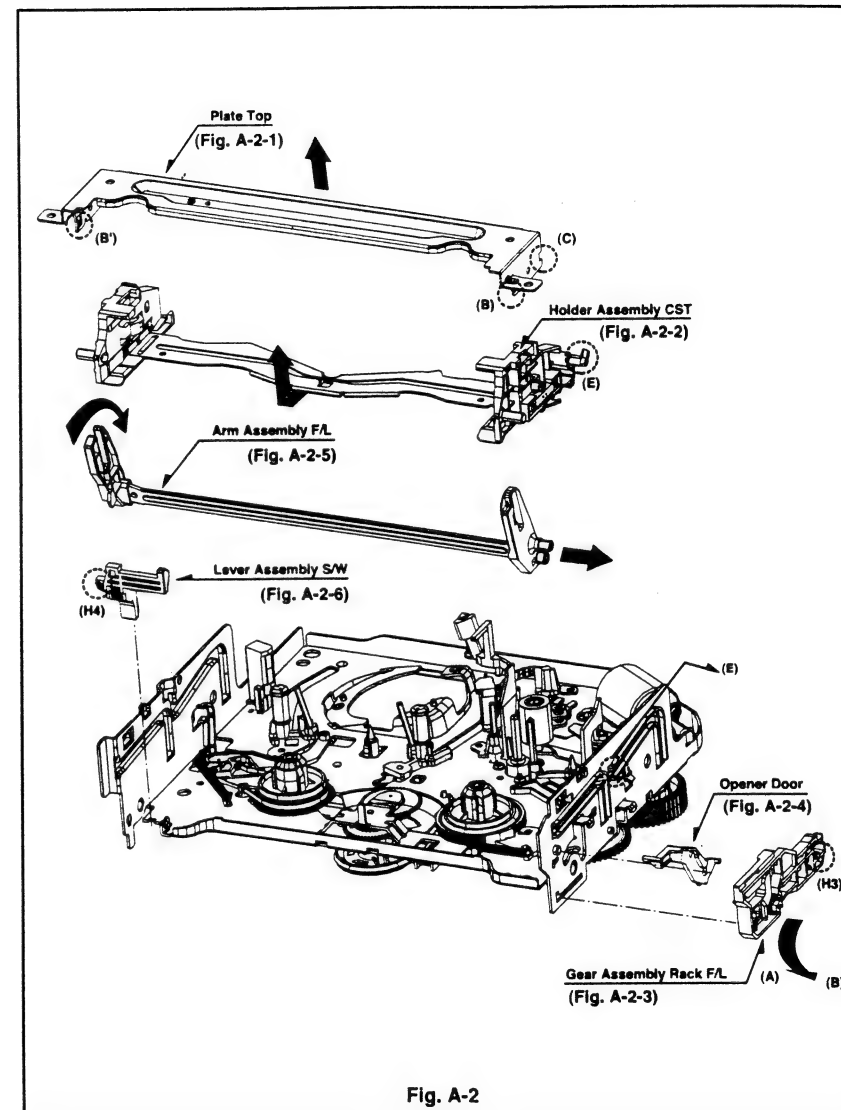


Fig. A-2

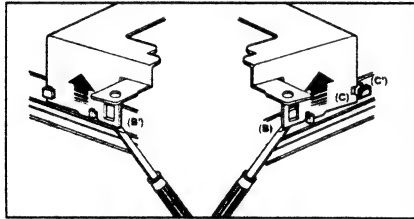
DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

2. Disassembly of Plate Top (Fig. A-2-1)

- 1) Separate the right part while leaning back the (B) part of the plate top toward the arrow direction.
- 2) Separate the left part while leaning back the (B') part of the plate top toward the arrow direction.
(Tool used: Tool such as (+) driver, auger, etc with pointed or flat end)

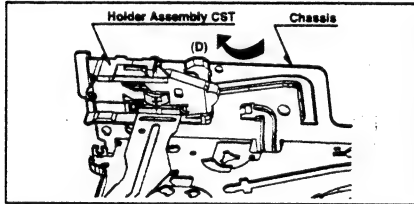
CAUTIONS

Assemble while pressing the (C), (C') part after corresponding them as in drawing.



3. Holder Assembly CST (Fig. A-2-2)

- 1) Firstly separate the left part from the groove on the (D) part of chassis while moving the holder assembly CST toward the arrow direction.



- 2) Separate the right part from each groove of chassis

CAUTIONS

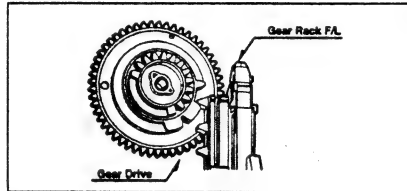
Assemble by inserting the left part after firstly inserting the (E) part of the holder assembly CST into the groove on the (E') part of chassis.

4. Disassembly of Gear Assembly Rack F/L (Fig. A-2-3)

- 1) Separate the hook (H3) while leaning ahead the hook (3) after moving the gear assembly rack F/L toward the arrow (A) direction.
- 2) Separate the gear assembly rack F/L toward the arrow (B) direction.

CAUTIONS

For the assembly, correspond the gear part of gear assembly rack F/L to the gear drive.



5. Opener Door (Fig. A-2-4)

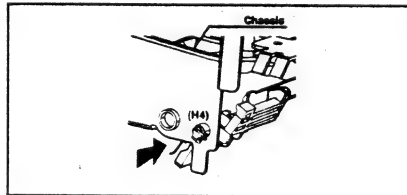
- 1) Separate the opener door ahead from the guide hole of chassis while turning it clockwise.

6. Arm Assembly F/L (Fig. A-2-5)

- 1) Firstly separate the left part of the arm assembly F/L from the groove of chassis while pushing the arm assembly F/L toward the arrow direction.
- 2) Separate the right part from the groove of chassis.

7. Lever Assembly S/W (Fig. A-2-6)

- 1) Separate the lever assembly S/W while pushing it toward the arrow direction after removing the hook (4) on the left side of chassis.



DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

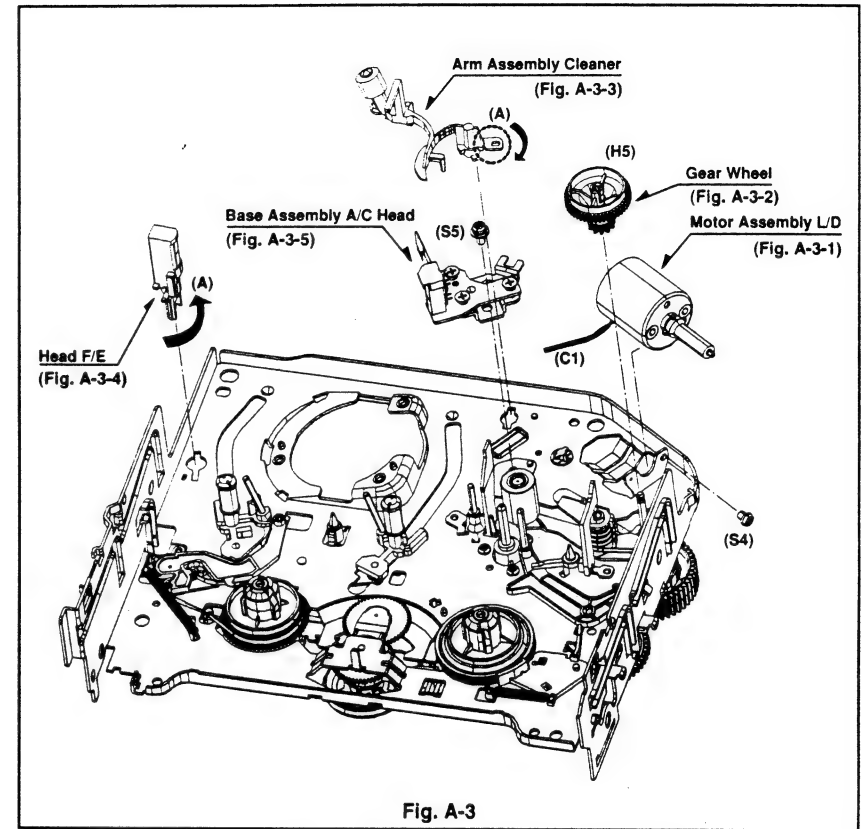


Fig. A-3

8. Motor Assembly L/D (Fig. A-3-1)

- 1) Take the connector (C1) connected to the Capstan motor PCB out.
- 2) Remove a screw (S4) of the chassis (S4) and step backward, and disassemble it while holding it up.

9. Gear Wheel (Fig. A-3-2)

- 1) Release the hook (H5) of the gear wheel and disassemble it upward.

10. Arm Assembly Cleaner (Fig. A-3-3)

- 1) Separate the (A) part of Fig. A-3-1 from the embossing of chassis, and hold it up while turning it anti-clockwise.

11. Head F/E (Fig. A-3-4)

- 1) Separate the (A) part of the head F/E from the embossing of chassis, and hold it up while turning it anti-clockwise.

12. Base Assembly A/C Head (Fig. A-3-5)

- 1) Release a screw (S5) and disassemble while holding it up.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

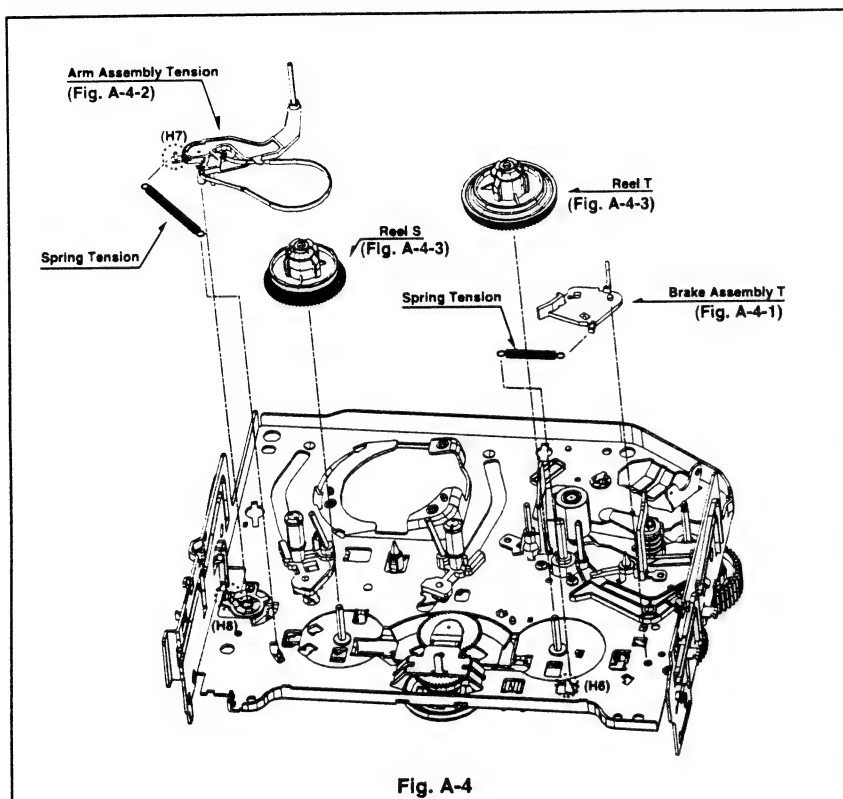


Fig. A-4

13. Brake Assembly T (Fig. A-4-1)

- 1) Release the spring tension from the lever spring hook (H6).
- 2) Disassemble the brake assembly T while holding it upward.

14. Arm Assembly Tension (Fig. A-4-2)

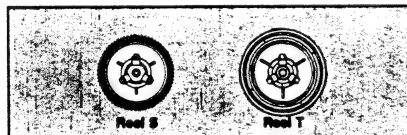
- 1) Release the spring tension the hook (H7) from the arm assembly tension.
- 2) After releasing the hook (H8) of the base tension, separate it while holding it up.

CAUTIONS

Spring used for both brake assembly T and arm assembly tension is used (2EA used).

15. Reel S/Reel T (Fig. A-4-3)

- 1) Disassemble the reel S/ reel T while holding it up (comparison between Reel S and Reel T)



DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

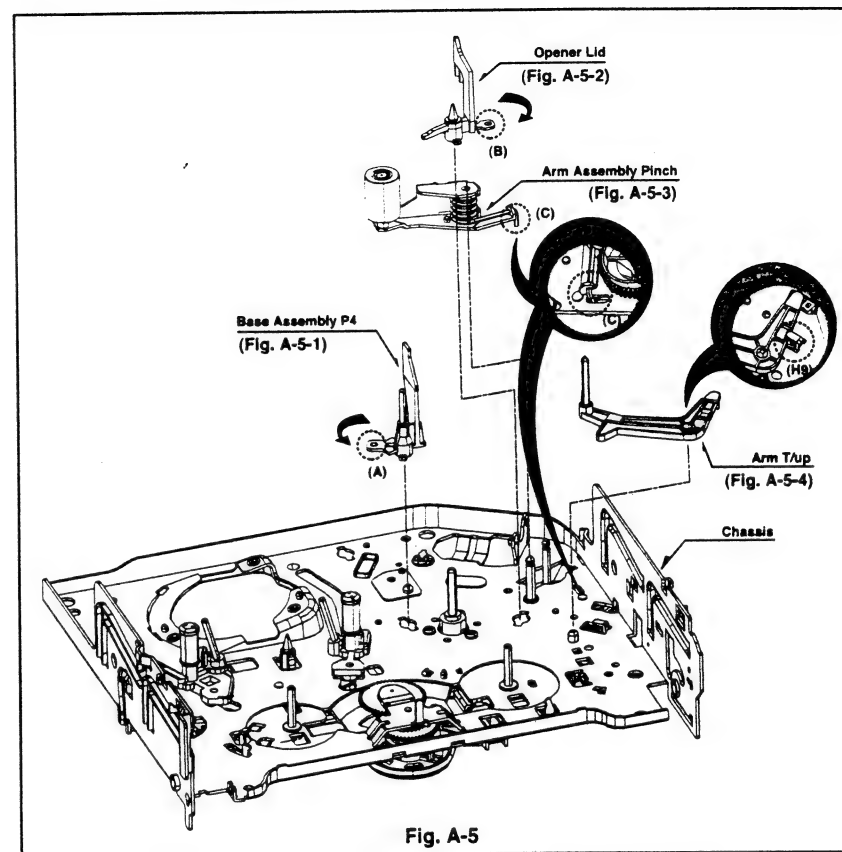


Fig. A-5

16. Base Assembly P4 (Fig. A-5-1)

- 1) Release the (A) part of the base assembly P4 from the embossing of chassis.
- 2) Hold the base assembly P4 up while turning it anti-clockwise.

17. Opener Lid (Fig. A-5-2)

- 1) Release the (B) part of the opener lid from the embossing of chassis.
- 2) Disassemble the opener lid upward while turning it anti-clockwise.

18. Arm Assembly Pinch (Fig. A-5-3)

- 1) Hold the arm assembly pinch up.

19. Arm T/up (Fig. A-5-4)

- 1) Turn the arm T/up to release the anchor jaw (H9) part of chassis and then hold it upward.

CAUTIONS

For the assembly, check the (C) part of the arm assembly pinch is assembled as in drawing.

- REVERSE THE MECHANISM.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

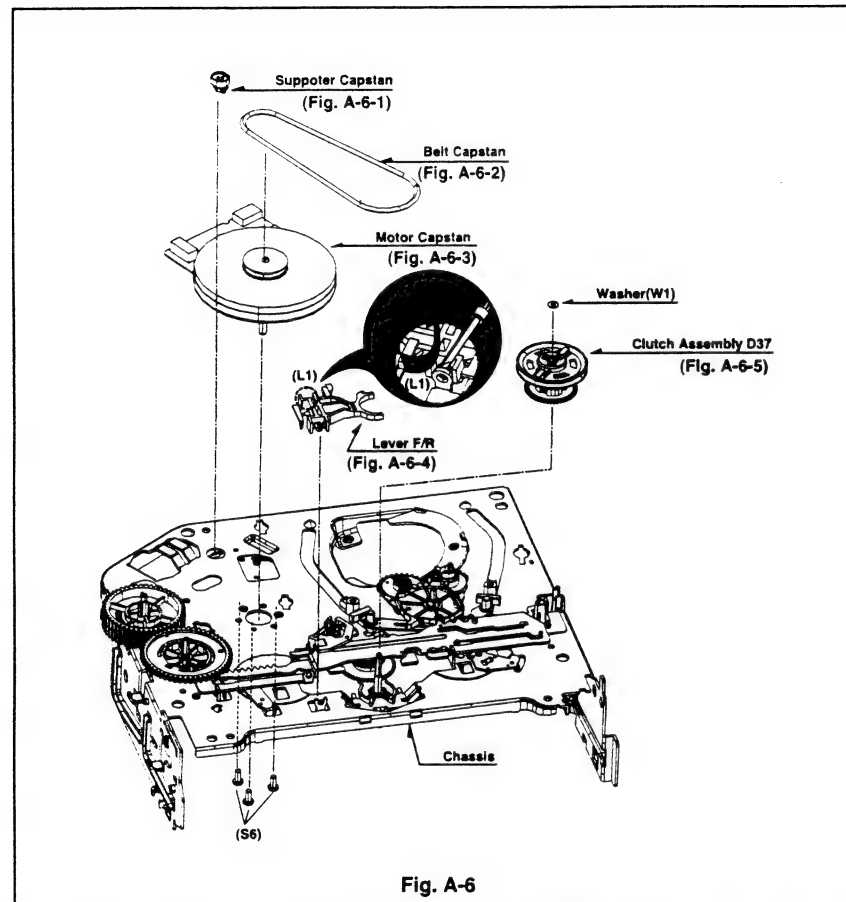


Fig. A-6

20. Supporter, Capstan (Fig. A-6-1)

- 1) Turn the supporter and Capstan by 90 deg. clockwise with a driver for disassembly.

21. Belt Capstan (Fig. A-6-2) / Motor Capstan (Fig. A-6-3)

- 1) Separate the belt Capstan.
- 2) Undo 3 screws (S6) on the bottom side of chassis and disassemble it upward.

22. Lever F/R (Fig. A-6-4)

- 1) Release the locking tab (L1) and then disassemble it upward.

23. Clutch Assembly D37 (Fig. A-6-5)

- 1) Remove the washer (W1) and then disassemble it upward.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

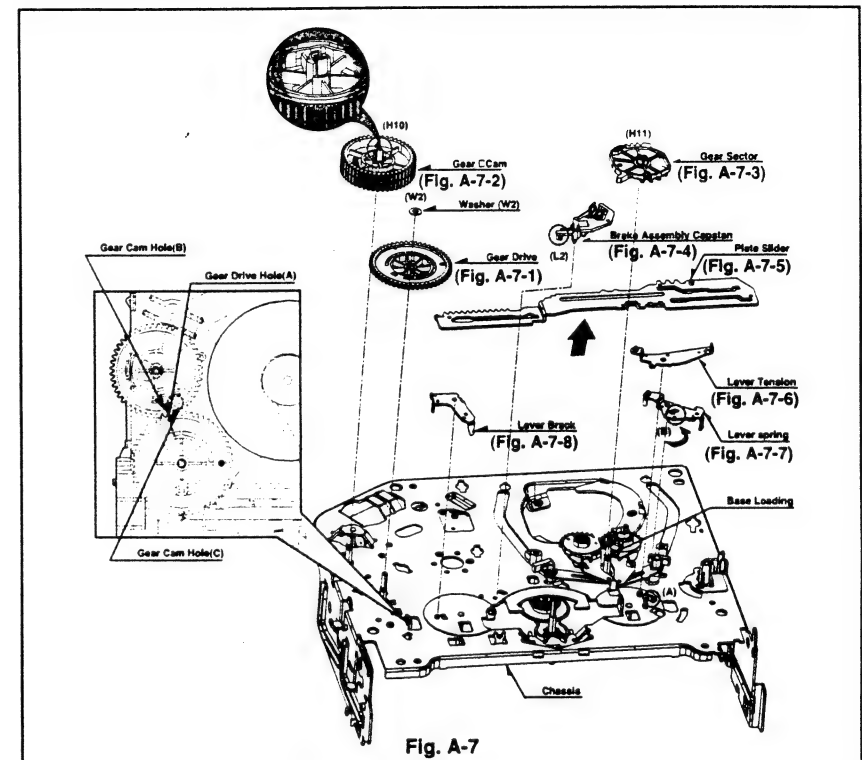


Fig. A-7

24. Gear Drive (Fig. A-7-1) / Gear Cam (Fig. A-7-2)

- 1) Remove the washer (W2) and then disassemble the gear drive.
- 2) Release the hook (H10) of the gear cam and then disassemble it upward.

CAUTIONS

For the assembly, adjust both the gear driver hole (A) and the gear cam hole (B) straightly and then correspond the gear cam hole (C) to the chassis hole.

25. Gear Sector (Fig. A-7-3)

- 1) Release the hook (H11) of the gear sector and then hold the gear sector upward.

26. Brake Assembly Capstan (Fig. A-7-4)

- 1) Release the locking tab (L2) on the bottom side of the plate slider and then disassemble it upward.

27. Plate Slider (Fig. A-7-5)

- 1) Disassemble the plate slider while holding it up.

28. Lever Tension (Fig. A-7-6)

- 1) Release the lever tension from the guide (A) of chassis while turning it anti-clockwise.
- 2) Disassemble the lever tension while holding it up.

29. Lever Spring (Fig. A-7-7)

- 1) Release the (B) part of the lever spring from the guide (A) of chassis while turning it anti-clockwise.
- 2) Disassemble the lever tension while holding it up.

30. Lever Brake (Fig. A-7-8)

- 1) Disassemble the lever brake while holding it up.

DECK MECHANISM DISASSEMBLY

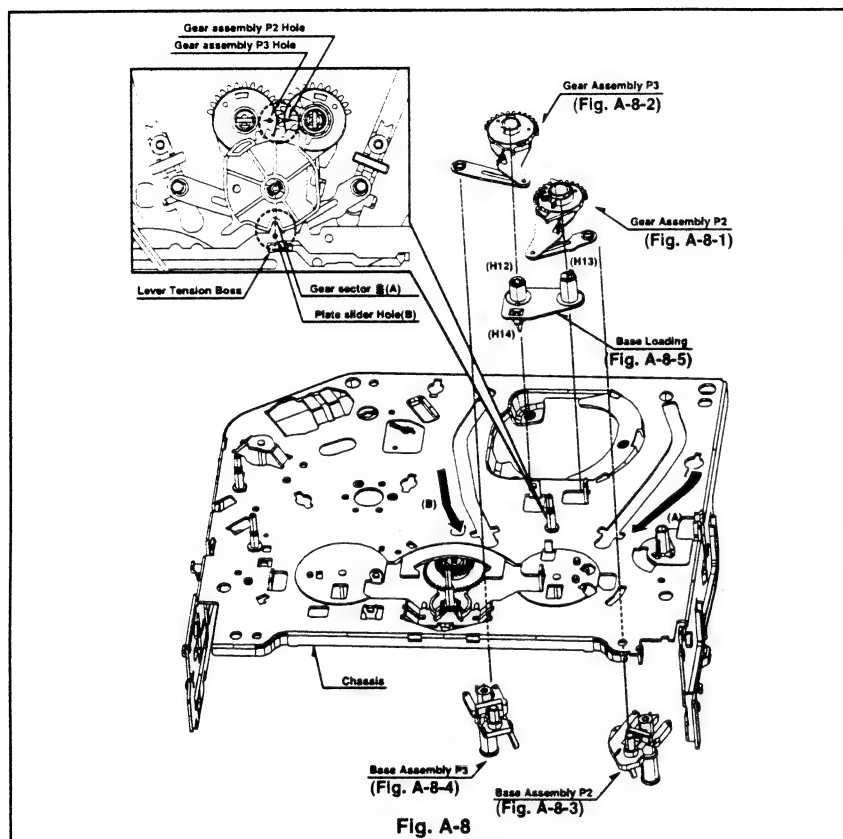


Fig. A-8

31. Gear Assembly P2 (Fig. A-8-1)/ Gear Assembly P3 (Fig. A-8-2)

- 1) Hold the gear assembly P2 upward.
- 2) Hold the gear assembly P3 upward.

CAUTIONS

For the assembly, check the holes of both the gear assembly P2 and the P3 are adjusted straightly, and then correspond the gear section groove (A) to the plate slider hole (B).

32. Base Assembly P2 (Fig. A-8-3)/ Base Assembly P3 (Fig. A-8-4)

- 1) Disassemble the base assembly P2 downward while moving it toward the arrow (A) direction along with the guide hole of chassis.
- 2) Disassemble the base assembly P2 downward while moving it toward the arrow (B) direction along with the guide hole of chassis.

33. Base Loading (Fig. A-8-5)

- 1) Release 3 hooks (H12, 13, 14) of the base loading, and then disassemble them upward.
- Reverse the mechanism.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

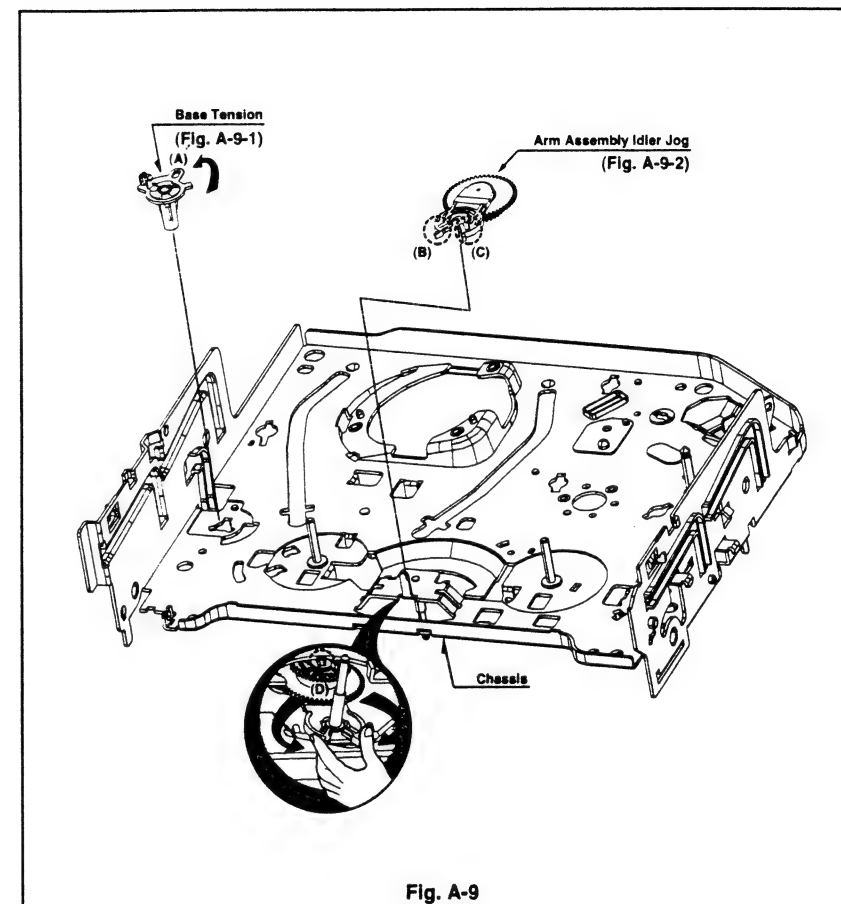


Fig. A-9

34. Base Tension (Fig. A-9-1)

- 1) Release the (A) part of the base tension from the embossing of chassis.
- 2) Hold the base tension upward while turning it anti-clockwise.

35. Arm assembly Idler Jog (Fig. A-9-2)

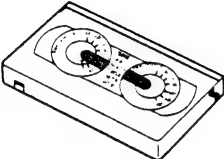
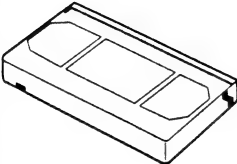




- 1) Push both (B), (C) parts in Fig. A-9-2 toward the arrow direction.
- 2) Disassemble the arm assembly idler upward.

CAUTIONS

Take care to ensure that the (D) part in the drawing is not hung to chassis in disassembly.

DECK MECHANISM ADJUSTMENT

• Fixtures and Tools for Service

<div>1. Cassette Torque Meter SRK-VHT-303(Not SVC part) Part No:D00-D006</div> <div></div>	<div>2. Alignment tape Part No NTSC:DTN-0001 PAL:DTN-0002</div> <div></div>	<div>3. Torque gauge 600g.Cm ATG Part No:D00-D002</div> <div></div>
<div>4. Torque gauge adaptor Part No:D09-R001</div> <div></div>	<div>5. Post height adjusting driver Part No:DTL-0005</div> <div></div>	<div>6. + Type driver (ø5)</div> <div></div>

DECK MECHANISM ADJUSTMENT

1. Mechanism Assembly Mode Check

Purpose of adjustment : To make tools normally operate by positioning tools accurately.

Fixtures and tools used	VCR (VCP) status	Checking Position
• Blank Tape (empty tape)	• Eject Mode (with cassette withdrawn)	• Mechanism and Mode Switch

1) Turn the VCR on and take the tape out by pressing the eject button.

2) Separate both top cover and plate top, and check both the hole (A) of gear cam and the hole (A') of chassis correspond (Fig. C-2).

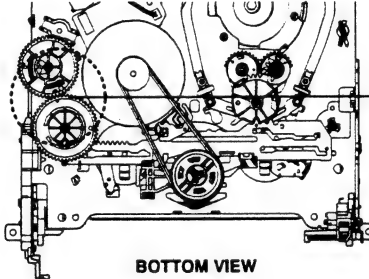
3) If it is done as in the paragraph 2): Turn the gear cam as in No.2) after mantling the motor assembly L/D.

4) Undo the screw fixing the deck and the main frame, and separate the deck assembly. Check both the hole (A) of gear cam and the hole (A') of chassis correspond (Fig. C-1).

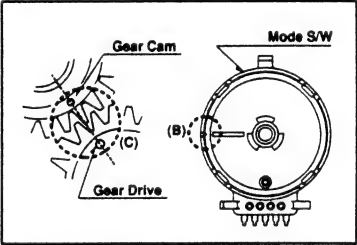
5) Check the mode S/W on the main P.C. board locates at a proper position as in (B) of the Fig. (C-1).

6) Connect the deck to the main P.C. board and perform all types of test.

CHECK DIAGRAM

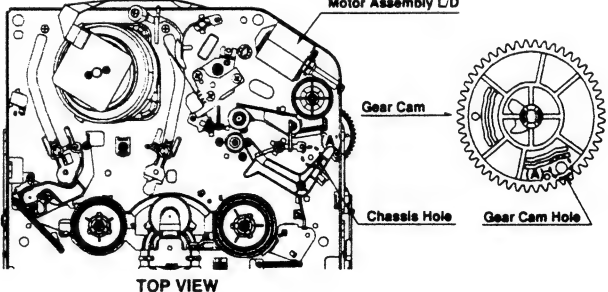


BOTTOM VIEW



Correspondence of the gear cam hole (O) and the gear drive hole (O)

Fig. C-1



TOP VIEW

Fig. C-2

DECK MECHANISM ADJUSTMENT

2. Previous Preparation for Deck Adjustment

(Preparation to load the VCR (VCP) with cassette tape not inserted)

- 1) Take the power cord from the consent.
- 2) Separate the top cover and the plate assembly top.
- 3) Insert the power cord into again.
- 4) Turn the VCR (VCP) on and load the cassette while pushing the lever stopper of the holder assembly CST backward. In this case, clog both holes on the housing rail part of chassis to prevent detection of the end sensor.

If doing so, proceeding to the stop mode is done. In this status, input signals of all modes can be received. However, operation of the Rewind and the Review is impossible since the take-up reel remains at stop status and so cannot detect the reel pulse (however, possible for several seconds).

3. Torque Measuring

Purpose of Measuring : To measure and check the reel torque on the take-up part and the supply part that performs basic operation of the VCR (VCP) for smoothly forwarding the tape.
Measure and check followings when the tape is not smoothly wound or the tape velocity is abnormally proceeded:

Fixtures and tools used		VCR (VCP) status	Measuring method	
<ul style="list-style-type: none"> • Torque Gauge (600 g.cm ATG) • Torque Gauge Adaptor • Cassette Torque Meter SRK-VHT-303 		• Play (FF) or Review (REW) Mode	<ul style="list-style-type: none"> • Try to operate the VCR (VCP) per mode with the tape not inserted (See '2. Prior Preparation for Deck Adjustment). • Measure after adhering and fixing the torque gauge adaptor to the torque gauge (Fig. C-3-1) • Read scale of the supply or take-up part of the cassette torque meter (Fig. C-3-2). 	
Item	Mode	Instruments	Reel Measured	Measuring Value
Fast forward Torque	Fast Forward	Torque Gauge	Take-Up Reel	More than 400g°cm
Rewind Torque	Rewind	Torque Gauge	Supply Reel	More than 400g°cm
Play Take-Up Torque	Play	VHT-303	Take-Up Reel	40~100g°cm
Review Torque	Review	VHT-303	Supply Reel	120~210g°cm

NOTE

Adhere the torque gauge adaptor to the torque gauge for measuring the value.

• Torque Gauge (600g.cm ATG)

• Cassette Torque Meter (SRK-VHT-303)

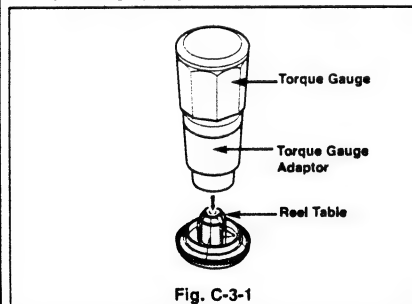


Fig. C-3-1

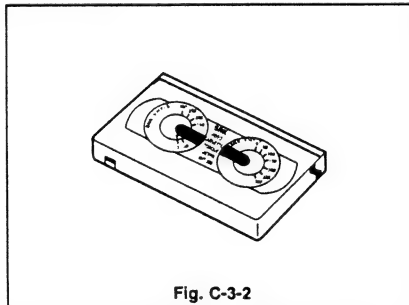


Fig. C-3-2

DECK MECHANISM ADJUSTMENT

4. Guide Roller Height Adjustment

Purpose of adjustment : To ensure that the bottom surface of the tape can travel along with the tape lead line of the lower drum by constantly and adjusting and maintaining the height of the tape.

4-1. Prior Adjustment

Fixtures and tools used	VCR (VCP) status	Adjustment position
• Post Height Adjusting Driver	• Play or Review Mode	• The guide roller height adjusting screw on the supply guide roller and the take-up guide roller
Adjustment Procedure <ol style="list-style-type: none"> 1) Travel the tape and check the bottom surface of the tape travels along with the guide line of the lower drum. 2) If the tape travels toward the lower part of guide line on the lower drum, turn the guide roller height adjusting screw to the left. 3) If it travels to the upper part, turn it to the right. 4) Adjust the height of the guide roller to ensure that the tape is guided on the guide line of the lower drum at the inlet/outlet of the drum. (Fig. C-4-1) 		ADJUSTMENT DIAGRAM <p>Fig. C-4-1</p>

4-2. Fine Adjustment

Fixtures and tools used	Measuring tools and connection position	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> • Oscilloscope • Standard test tape • Post height adjusting driver 	<ul style="list-style-type: none"> • CH-1: PB RF Envelope • CH-2: NTSC : SW 30Hz PAL : SW 25Hz • Head switching output point • RF Envelope output point 	• Play the standard test tape.	• Guide roller height adjusting screw
<ol style="list-style-type: none"> 1) Play the standard test tape after connecting the probe of oscilloscope to the RF envelope output point and the head switching output point. 2) Tracking control (playback) : Locate it at the center (Set the RF output to the maximum value via the tracking control when such adjustment is completed after the drum assembly is replaced.) 3) Height adjusting screw: Flatten the RF waveform. (Fig. C-4-2) 4) Move the tracking control (playback) to the right/left. (Fig. C-4-3) 5) Check the start and the end of the RF output reduction width are constant. 		Waveform <p>Fig. C-4-2</p> <p>Fig. C-4-3</p>	
CAUTIONS <p>There must exist no crumpling and folding of the tape due to excess adjustment or insufficient adjustment.</p>		Connection Diagram	

DECK MECHANISM ADJUSTMENT

5. Audio/Control (A/C) Head Adjustment

Purpose of adjustment : To ensure that audio and control signals can be recorded and played according to the contract tract by constantly maintaining distance between tape and head, and tape tension between the P3 post and the P4 post.

5-1. Prior Adjustment (performed only when no audio output appears in play of the standard test tape)

Fixtures and tools used	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> Blank Tape (Empty Tape) Driver (+) Type $\phi 5$ 	<ul style="list-style-type: none"> Play the blank tape (empty tape). 	<ul style="list-style-type: none"> Tilt adjusting screw (C) Height adjusting screw (B) Azimuth adjusting screw (A)

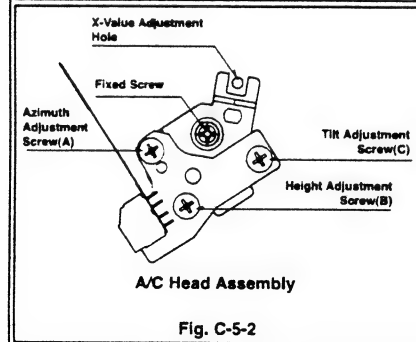
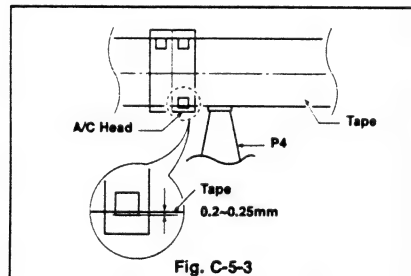
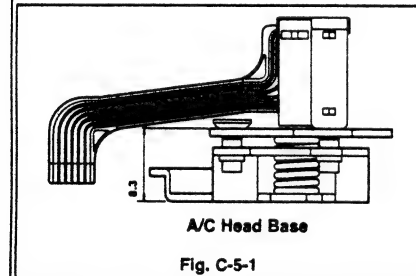
Adjustment Procedure/Adjustment Diagrams

- 1) Basically use the A/C head assembly adjusted as in SPEC.
- 2) Check there is crumpling and folding of the tape around the A/C head. If it is, Turn and adjust the tilt adjusting screw to ensure that the tape corresponds to the bottom guide of the P4, and recheck the tape path after proceeding play for 4-5 seconds.

- 3) Where the tape bottom is not equal to Fig. C-5-3, Adjust the height by using the height adjusting screw (B) and then readjust it by using the tilt adjusting screw (C).

CAUTIONS

Always check the height of the A/C head since most ideal height of A/C head can be obtained when the bottom part of the tape is away 0.2 ~ 0.25mm from the bottom part of the A/C head.



DECK MECHANISM ADJUSTMENT

5-2. Tape Path Check between Pinch Roller and Take up Guide (Check in the Rev Mode)

- 1) Check the tape pass status between the pinch roller and the take-up guide. (Check there is crumpling of the tape pass and folding of the take-up guide.)
 - (1) When holding of the take-up guide bottom occurs
Turn the tilt adjusting screw (C) clockwise and travel it stably to ensure there is no crumbling or folding of the tape.
 - (2) When holding of the take-up guide top occurs
Turn the tilt adjusting screw (C) anti-clockwise and

travel it stably to ensure there is no crumbling or folding of the tape.

- 2) Check there is folding of the tape at the bottom or top of the take-up guide in cutting-off the REV mode

CAUTIONS

If the RF waveform is changed after adjusting the A/C head, perform fine adjustment to ensure the RF waveform is flattened.

5-3. Fine Adjustment (Azimuth Adjustment)

Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> Oscilloscope Standard test tape (only for SP) Driver (+) Type $\phi 4$ 	<ul style="list-style-type: none"> Audio Output Jack 	<ul style="list-style-type: none"> Play the standard test tape, 1KHz, 7KHz. 	<ul style="list-style-type: none"> Azimuth Adjusting Screw (A) Height Adjusting Screw (B)
Adjustment Procedure <ol style="list-style-type: none"> 1) Connect the probe of Oscilloscope to the audio output jack. 2) Ensure that Audio 1KHz, 7KHz output is flattened at the maximization point by adjusting the Azimuth adjusting screw (A). 		<p>Fig. C-5-4</p>	

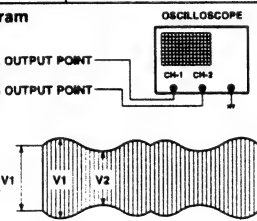
5. X-distance Adjustment

Purpose of adjustment : To maintain compatibility with other VCR (VCP).

Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> Oscilloscope Standard test tape (only for SP) Driver (+) Type $\phi 4$ 	<ul style="list-style-type: none"> CH-1: PB RF Envelope CH-2: NTSC ; SW 30Hz PAL:SW 25Hz Head switching output point RF Envelope output point 	<ul style="list-style-type: none"> Play the standard test tape. 	
Adjustment Procedure <ol style="list-style-type: none"> 1) After releasing the auto tracking, lightly turn the fixing screw. Turn the (+) type driver ($\phi 3 \sim \phi 4$) on the X-distance adjusting hole to the right or left. Adjust the RF envelope level to the maximum point and then fix the fixing screws. 2) For the 31mm head, adjust it with the SP tape recorded in the width of 31mm since the head travels on the tape track only for SP with the width of 58mm. 		Connection Diagram <p>Fig. C-6</p>	

DECK MECHANISM ADJUSTMENT

7. Adjustment after Drum Assembly (Video Heads)

Purpose of adjustment : To adjust and stabilize the height change, X-distance change, etc depending on the guide roller after assembling the drum.			
Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> Oscilloscope Standard test tape (only for SP) Post Height Adjusting Driver Driver (+) Type Ø 5 	<ul style="list-style-type: none"> CH-1: PB RF Envelope CH-2: NTSC : SW 30Hz PAL:SW 25Hz Head switching output point RF Envelope output point 	<ul style="list-style-type: none"> Play the blank tape. Play the standard test tape. 	<ul style="list-style-type: none"> Fine adjustment of guide roller Switching Point Tracking Preset X-distance
Checking/Adjustment Procedure <ol style="list-style-type: none"> 1) Play the blank tape (empty tape) and check whether the guide roller crumbles or wrinkles the tape and adjust it if necessary. 2) Check that the RF envelope output waveform is flat, and adjust the height of the guide roller while playing the standard test tape. 3) Adjust the switching point. 4) Check the RF envelope output is the maximum when the tracking control locates at the center. If not maximum, set up to ensure that RF envelope output becomes the maximum by turning the (+) type driver (Ø 3 ~ Ø 4) on the base A/C groove. 		Connection Diagram  <p>Waveform</p> <p>V1/V MAX = 0.7 V1/V MAX = 0.8 RF ENVELOPE OUTPUT</p>	

8. Check of Traveling Device after Deck Assembly

8-1. Audio, RF Normalization Time (Locking Time) Check in Play after CUE or REV

Fixtures and tools used	Measuring standard	Connection position	VCR (VCP) status
<ul style="list-style-type: none"> Oscilloscope 6H 3KHz Color Bar Standard Test tape Stop Watch 	<ul style="list-style-type: none"> RF Locking Time: Within 5 seconds Audio Locking Time : Within 10 seconds 	<ul style="list-style-type: none"> CH-1: PB RF Envelope CH-2: Audio output RF Envelope output point Audio output jack 	<ul style="list-style-type: none"> Play the 6H 3KHz Color Bar Standard Test tape.
Checking Procedure <ol style="list-style-type: none"> 1) Check that locking time of the RF and Audio waveform is fallen within the measuring standard in conversion of the play mode from the CUE or the REV mode. 2) Readjust the paragraph 5 and 6 if it deviates from the standard. 			

8-2. Check of Tape Curl and Jam Status

Fixtures and tools used	Fixtures and tools used	Fixtures and tools used
<ul style="list-style-type: none"> T-160 Tape T-120 Tape 	<ul style="list-style-type: none"> There must be no jam or curl at the first, middle and end position of tape. 	<ul style="list-style-type: none"> Travel the tape at the position of its first and end.
Checking Procedure <ol style="list-style-type: none"> 1) Check there is no abnormality of every traveling post status. 2) There must be no abnormal operation of the counter in occurrence of folding of the bottom tape. There must be not abnormality of audio signal in damage of the top tape. 3) If there is abnormality, readjust the adjustment paragraph 4 and 5. 		

PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

1. Checking Points prior to Repair

Following abnormal phenomena may be repaired by removal of foreign materials and oil supply. Check oiling is required at the checking set or cleaning status is complete. Determine that necessity of checking and repair the set exists after checking the using period of the set together with the user. In this case, followings must be checked:

Phenomena	Checking Points and Cause	Replacement
Color beat	Pollution of Full-Erase Head	o
S/N, Color Faded	Pollution of Video Head	o
Horizontal, Vertical Jits	Pollution of Video Head or Tape Transport System	o
Poor Sound, Low Sound	Pollution of Audio/Control Head	o
No tape wound or tape wound loosely, FF or REW impossible, or slow turning	Pollution of Pinch Roller or Belt Capstan Belt	o
Tape loosely wound in REV or Unloading	Deterioration of Clutch Assembly D37 Torque Pollution of Drum and Traveling Device	o Fig. C-9-3

CAUTIONS

If operation of the position with (O) mark is abnormal even after removing cause, replace it with substitute product since it shows damage or wearing.

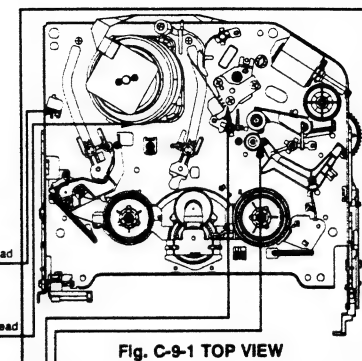


Fig. C-9-1 TOP VIEW

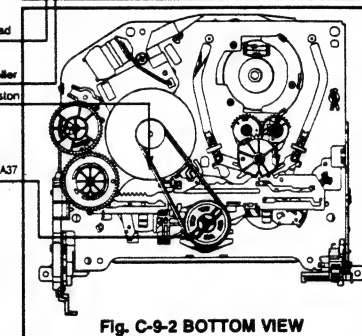


Fig. C-9-2 BOTTOM VIEW

* No. (1) ~ (12) shows sequence that the tape moves from the supply reel to the take-up reel.)

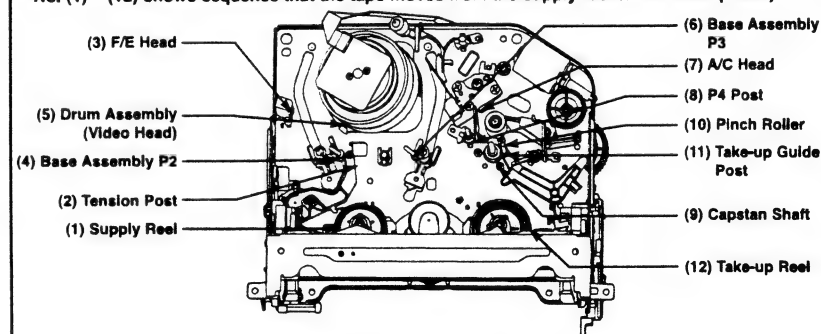


Fig. C-9-3 Tape Transport System

PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

2. Essential Check and Repair

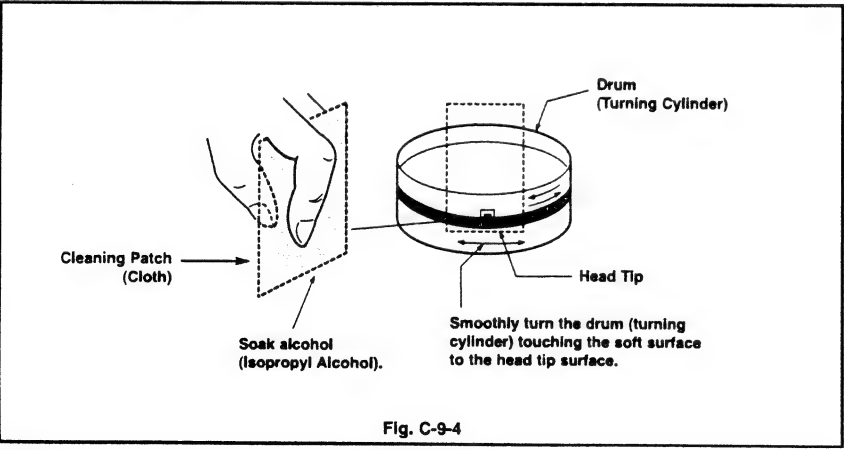
Recording density of the video is far higher than the audio. Therefore video parts are very precise so as to allow only error of 1/1000mm or so in order to maintain compatibility with other videos.
If one of these parts is polluted or old, same phenomena will appear as they are damaged.
To maintain clear screen, regular check, replacement of old and damaged parts and oil supply, etc are essential.

3. Regular Check and Repair

Check and repair schedule is not constant since they vary depending on method that the consumer uses video and environment where the video is installed at.
However, for the video used by common household, good screen will be maintained if regular check and repair per 1,000 hour is performed. The following chart shows relationship between using time and checking time:

Table 1

Time Requiring Checking	About 1 year	About 18 months	About 3 years
Average hours used per day			
One hour			
Two hours			
Three hours			



4. Tools for Check and Repair

- (1) Grease: Fiol G-3114 (KANTO) or equivalent grease (Green)
- (2) Grease: Kanto G-754, PL-433 (Yellow)
- (3) Alcohol (Isopropyl Alcohol)
- (4) Cleaning Patch (cloth)

5. Maintenance Process

5-1) Removal of Foreign Material

- (1) Removal of foreign material from video head (Fig. C-9-4)
Firstly try to use a cleaning tape.
Use a cleaning patch if foreign materials are not removed with the cleaning tape due to severe dirty of the head. Soak the cleaning patch in alcohol and put it to the head tip. Smoothly turn the drum (turning cylinder) to the right or left (In this case, the cleaning patch must not be moved vertically).
After completely drying the head, test the traveling status of the tape.
If alcohol (isopropyl alcohol) remains at the video head, the tape may be damaged when this solution touches with the head surface.

Never use a cloth bar (commercial sale)

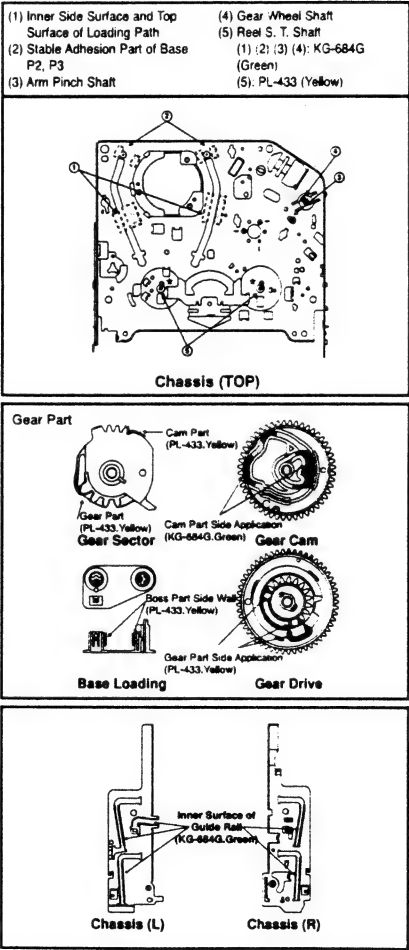
- (2) Wipe the tape transport system and the drive system with the cleaning patch soaked in alcohol (isopropyl alcohol) when removing foreign materials from them.
1) The part touched with the traveling tape is called as tape transport system. The drive system consists of parts to travel the tape.
2) Care must be exercised so that unreasonable force to change the pattern will be applied to the tape transport system during removal of foreign materials.

PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

5-2) Grease Applications

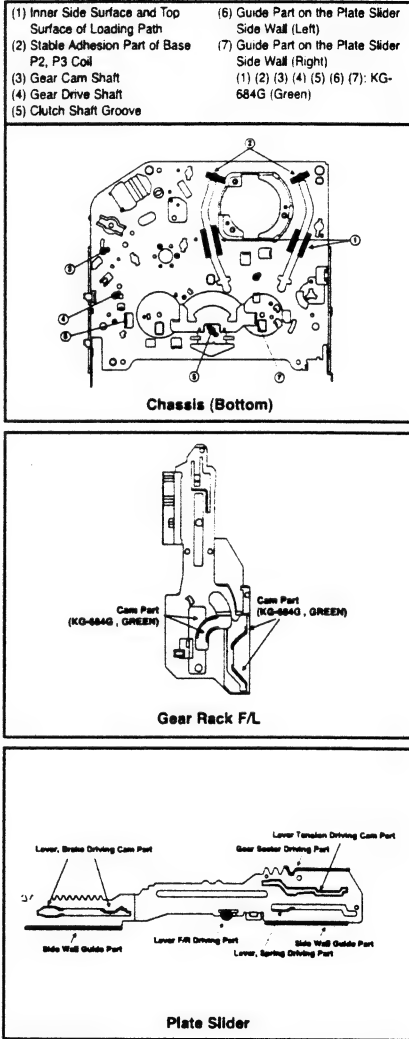
- (1) Grease Application Method
Apply grease by using a cloth swab or brush. Care must be exercised so that excess quantity should not be used. If the excessive quantity is applied, wipe it with the gauze soaked in alcohol (isopropyl alcohol).

NOTE: POSITION OF GREASE APPLICATION



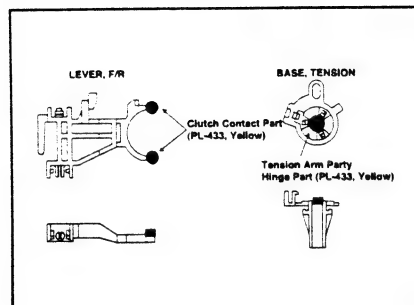
(2) Regular Grease Application

Apply grease to the designated application position every 500 hour.

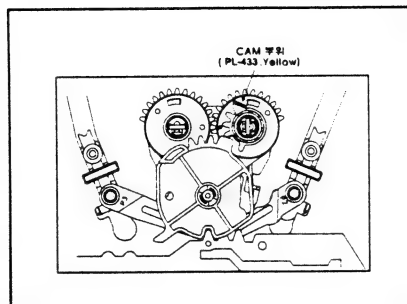


PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

Lever, F/R, Base, Tension



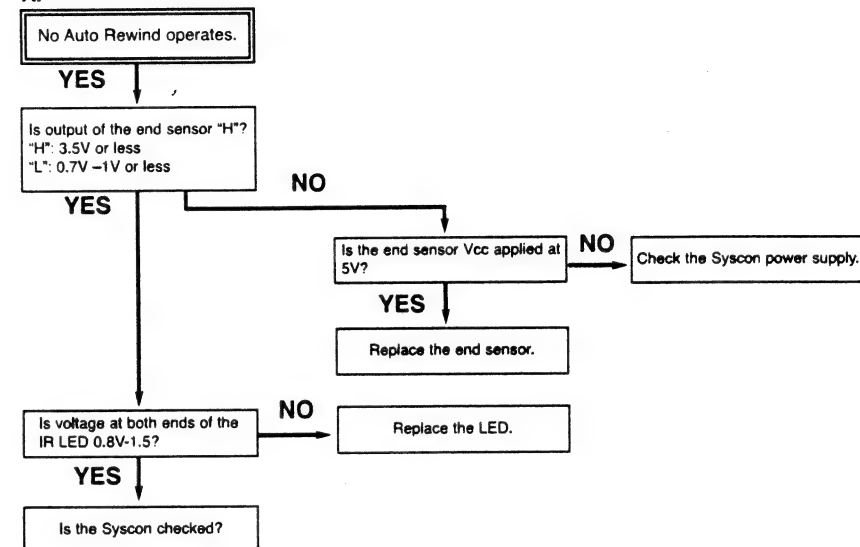
GEAR AY, P2 & P3



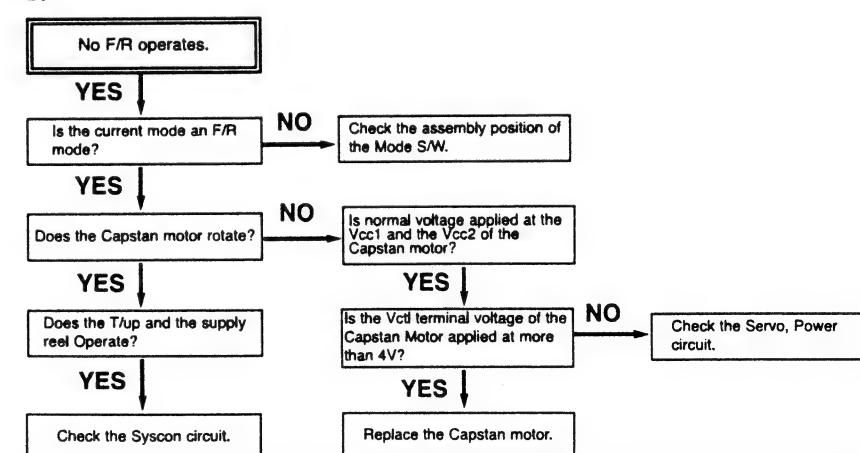
MECHANISM TROUBLESHOOTING GUIDE

1. Deck Mechanism

A.

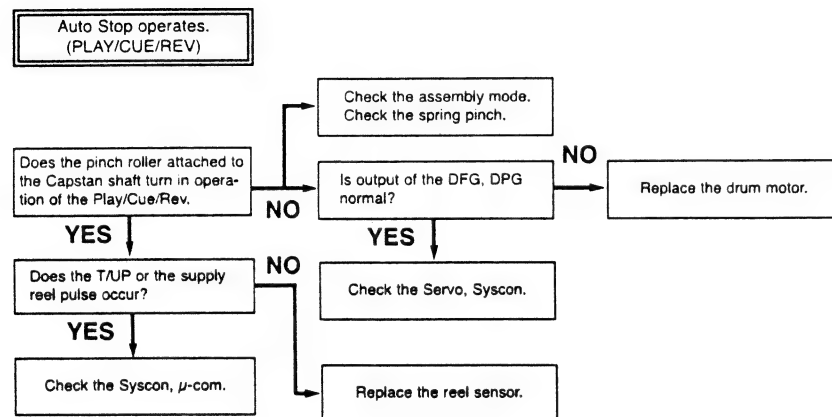


B.

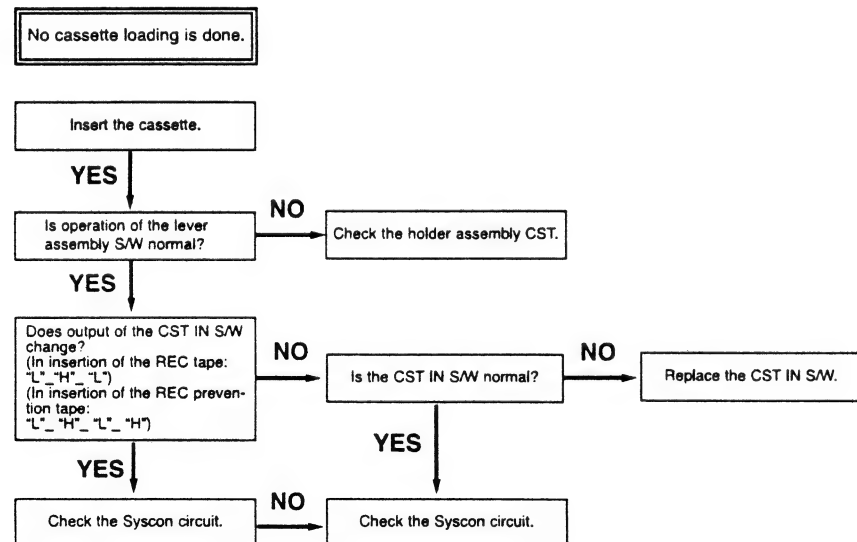


MECHANISM TROUBLESHOOTING GUIDE

C.

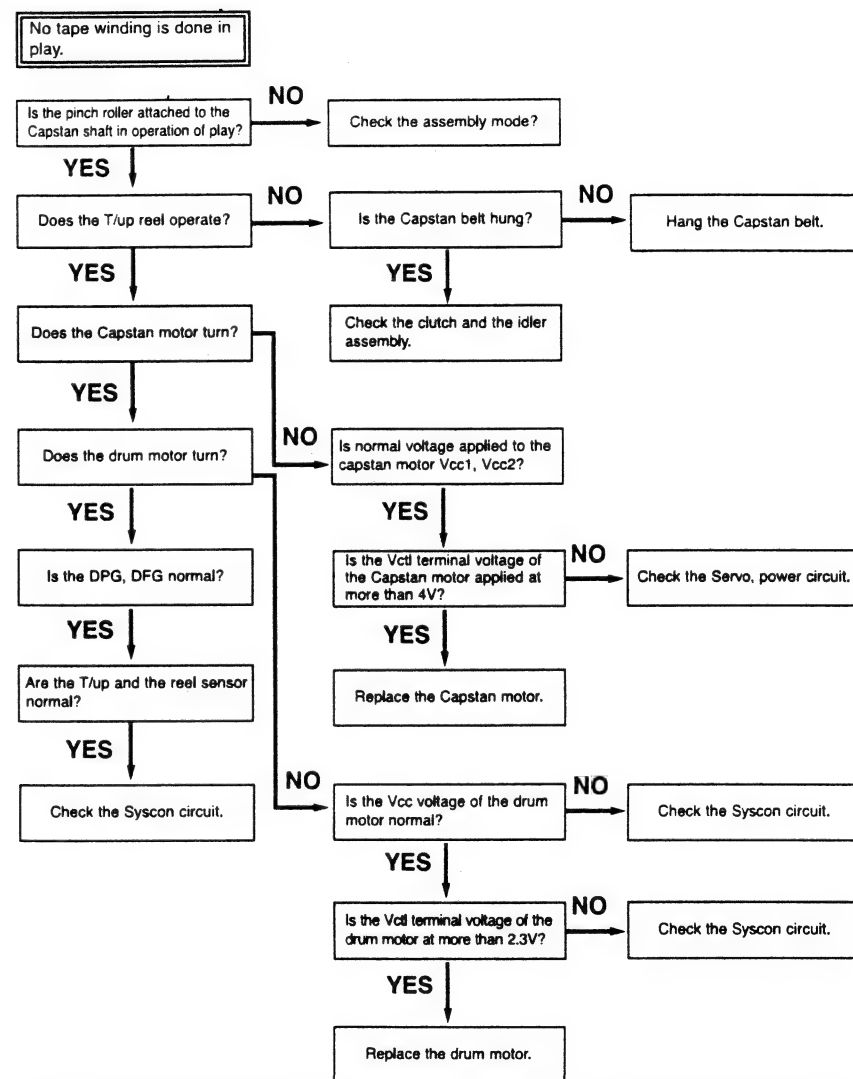


D.



MECHANISM TROUBLESHOOTING GUIDE

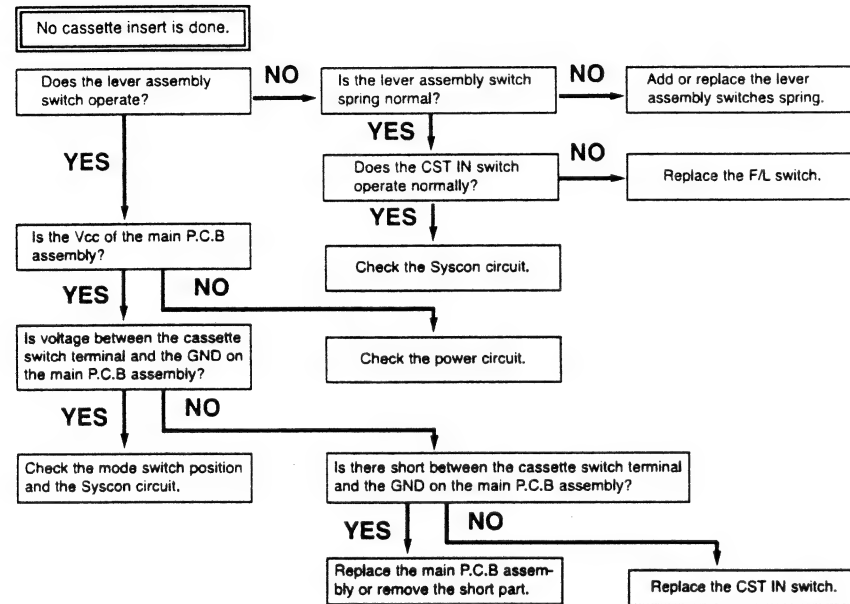
E.



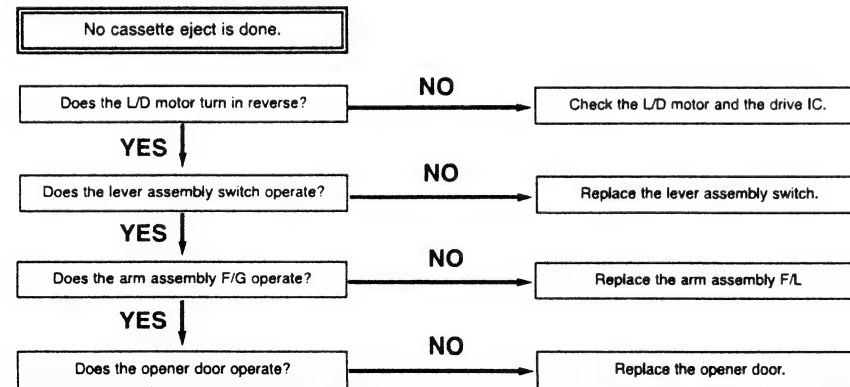
MECHANISM TROUBLESHOOTING GUIDE

2. Front Loading Mechanism

A.

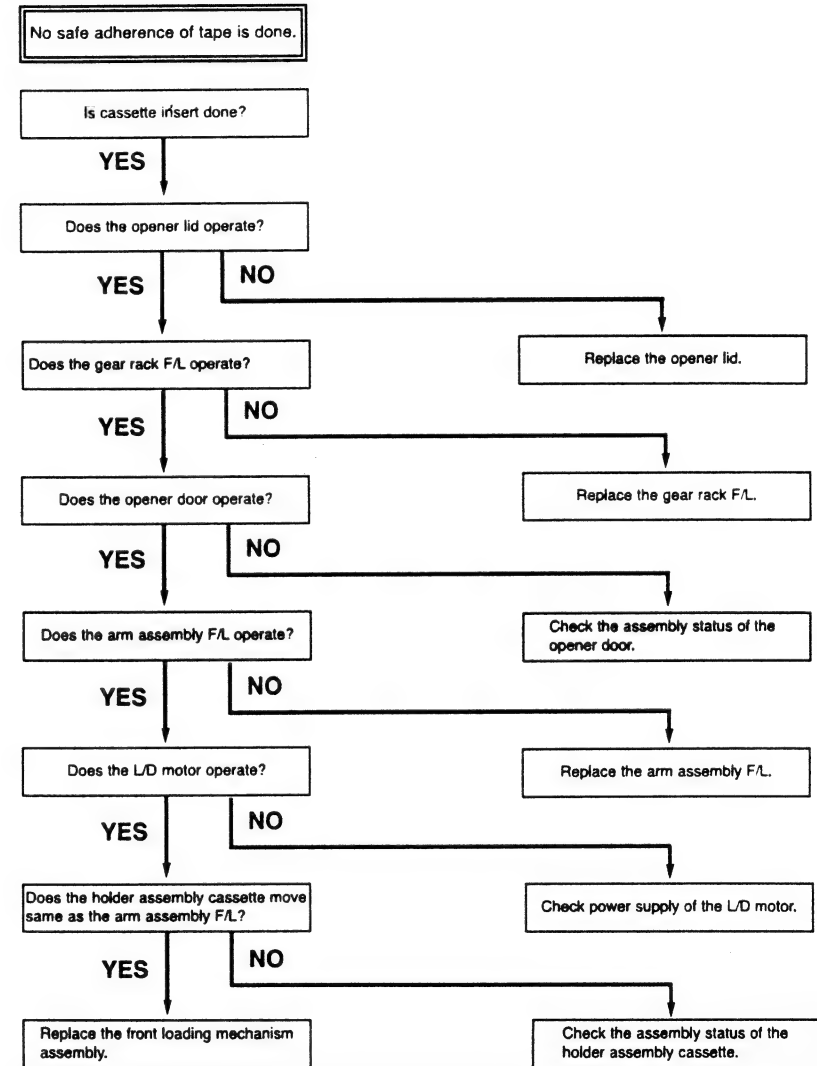


B.



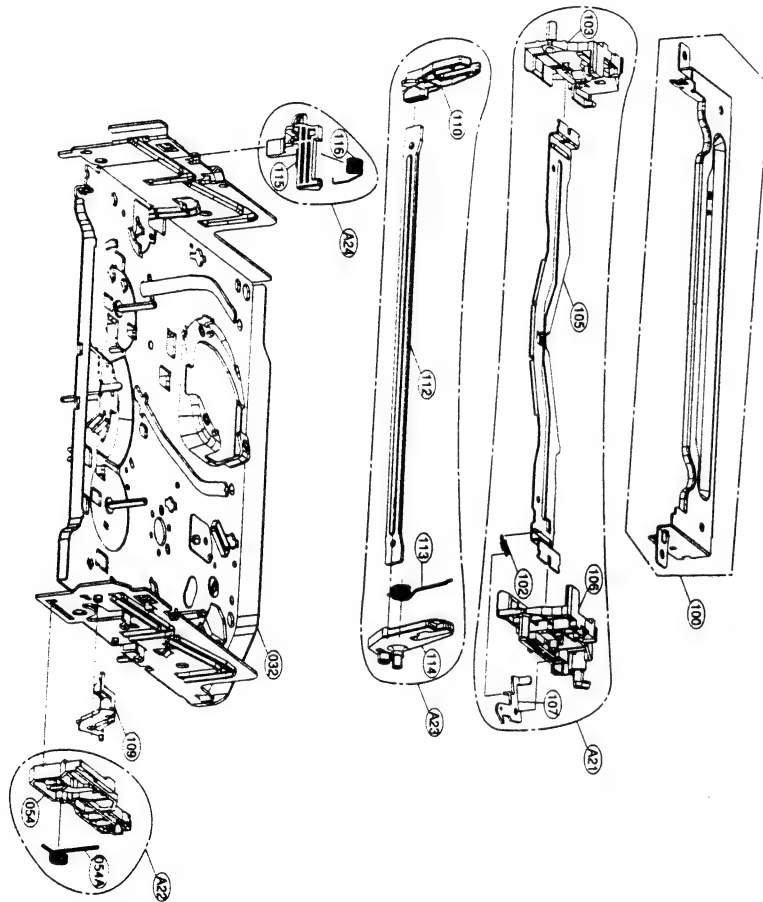
MECHANISM TROUBLESHOOTING GUIDE

C.



EXPLODED VIEWS

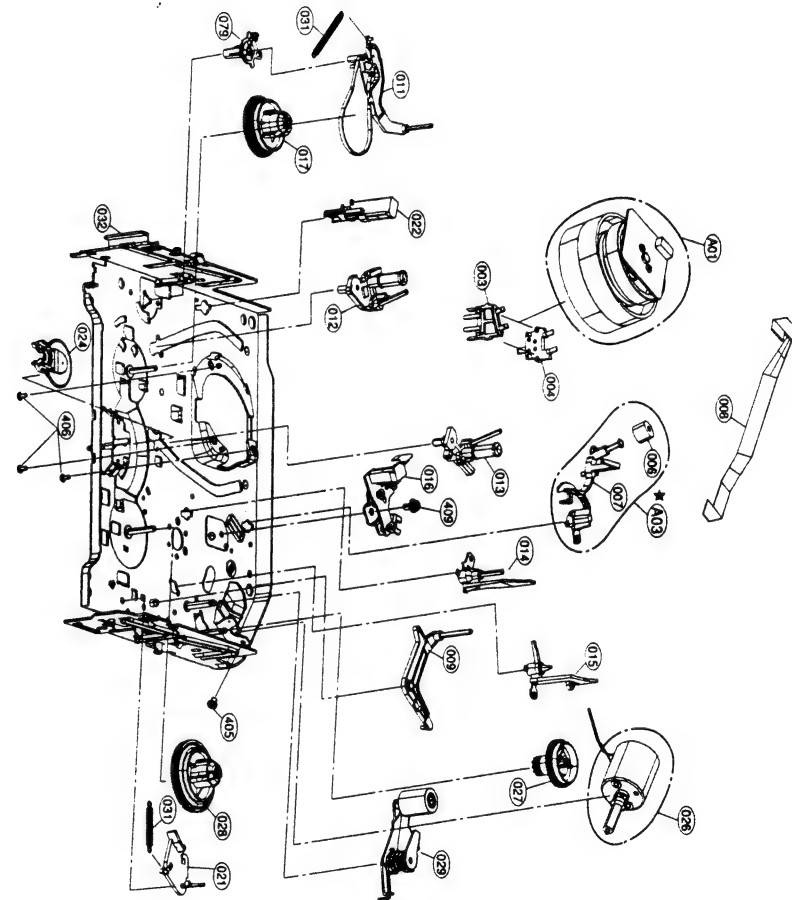
1. Front Loading Mechanism Section



EXPLODED VIEWS

2. Moving Mechanism Section (1)

★ OPTIONAL PART



3. Moving Mechanism Section (2)

[illegible]

SECTION 5 RL-02A LOADER PART

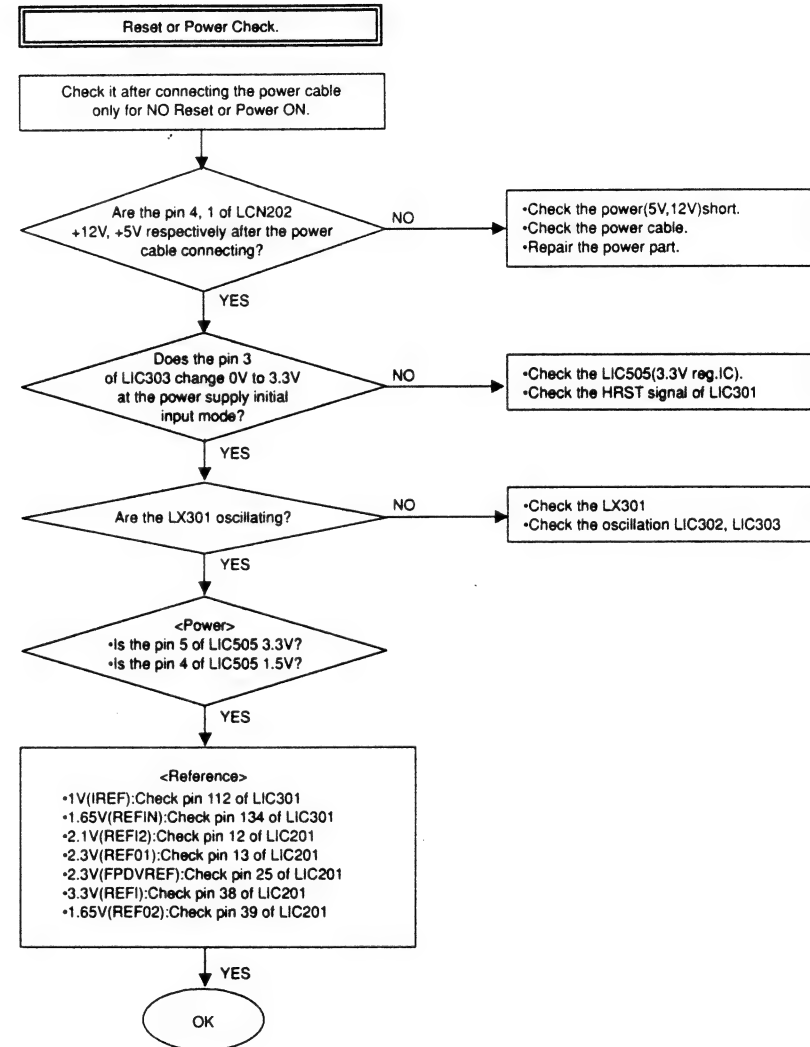
Note: It is not recommended for component repair on this RL-02A Loader Module but to replace the complete loader when it becomes defective.
The information in this section is published for reference only.

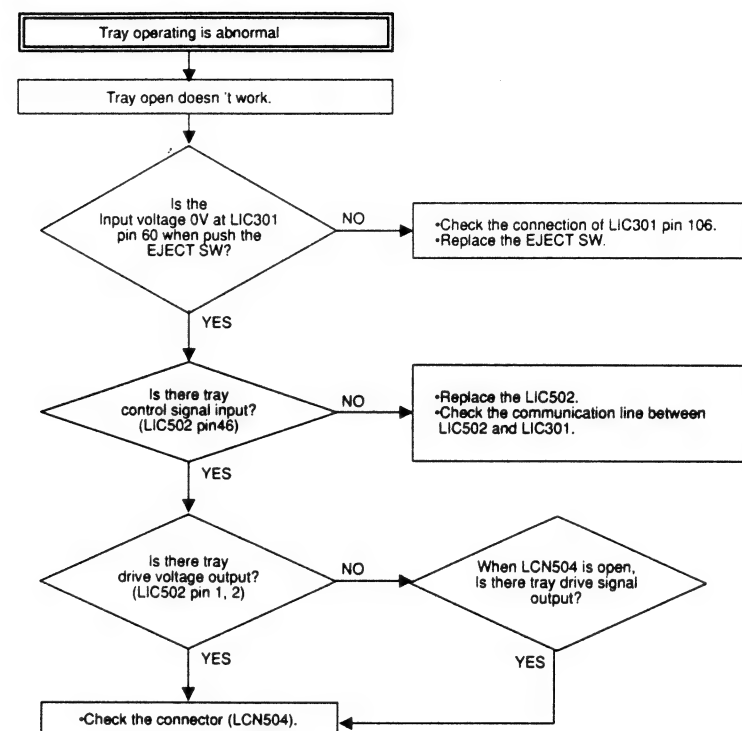
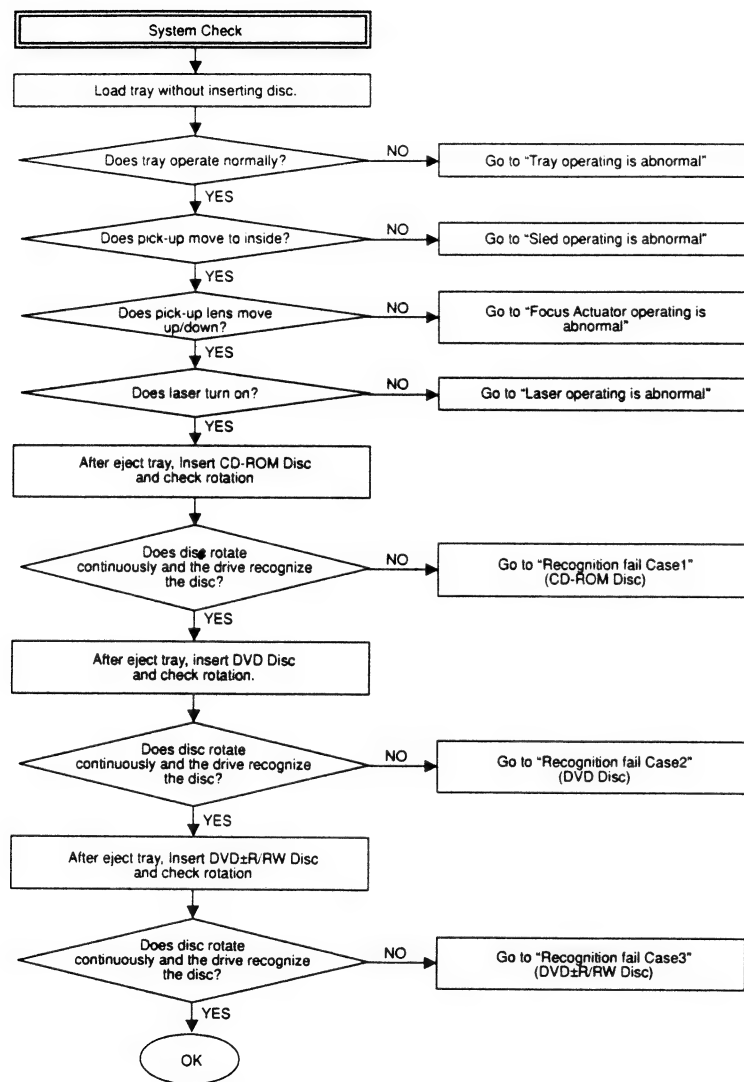
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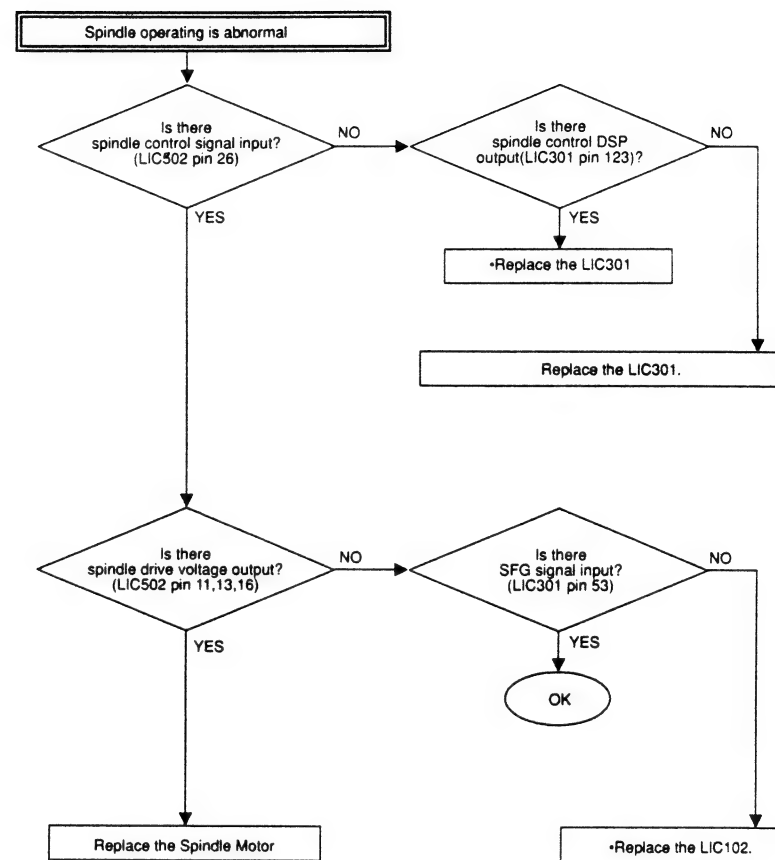
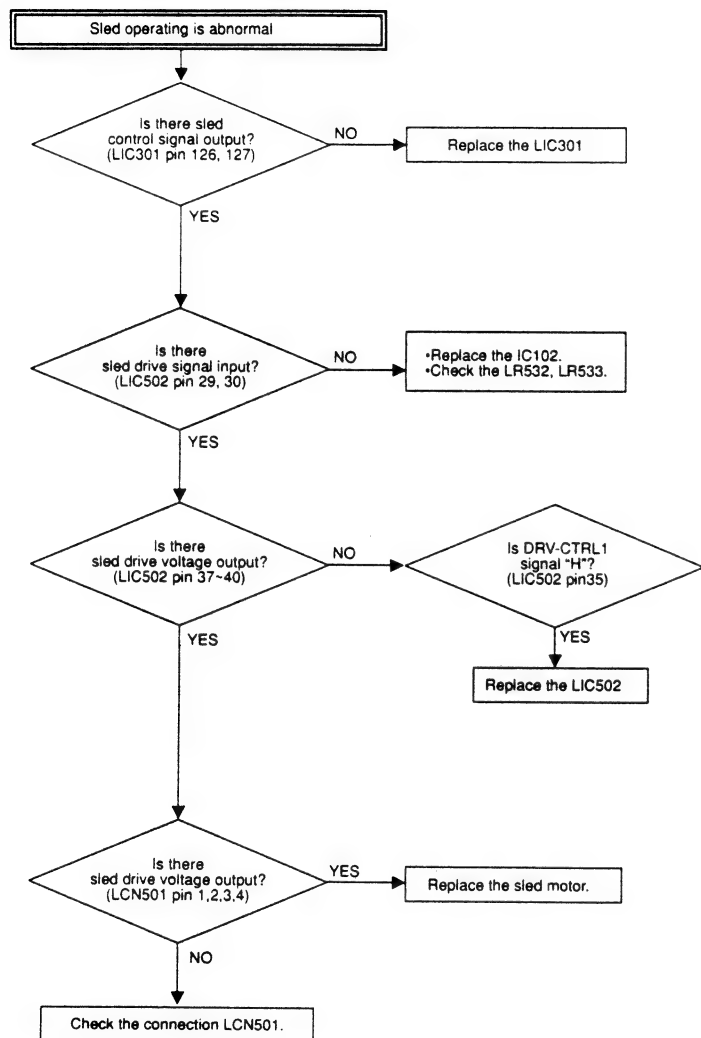
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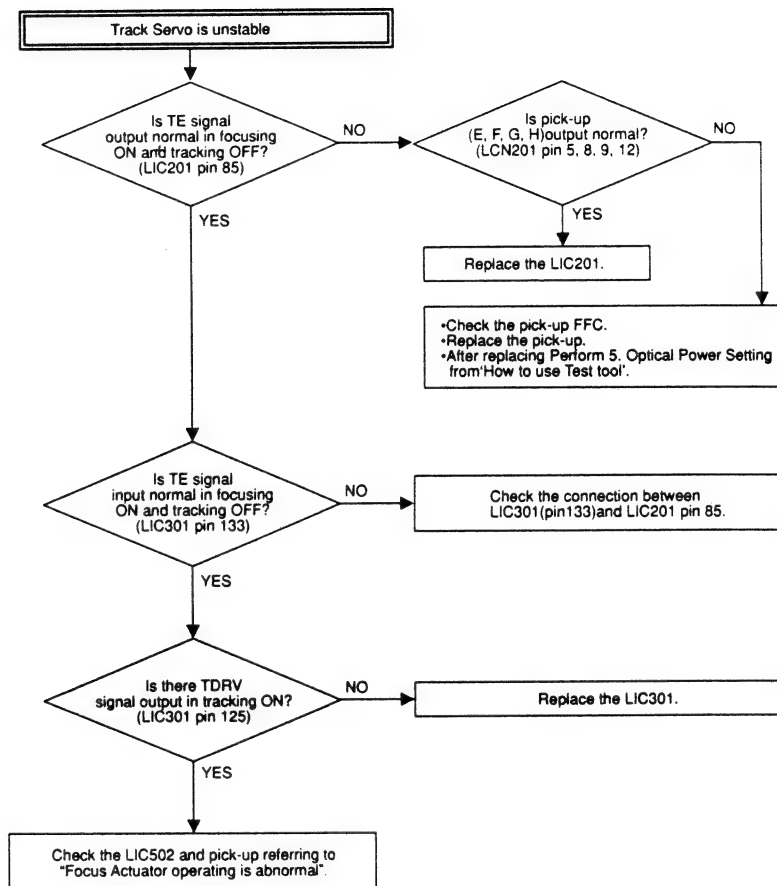
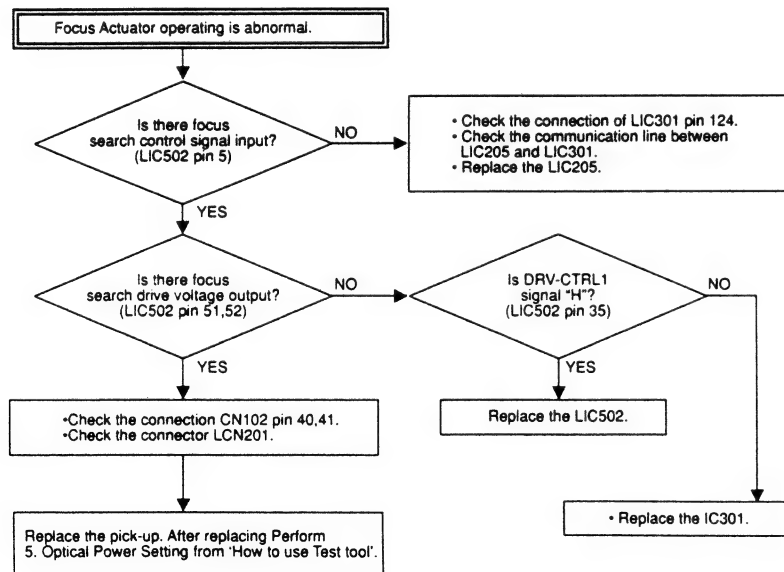
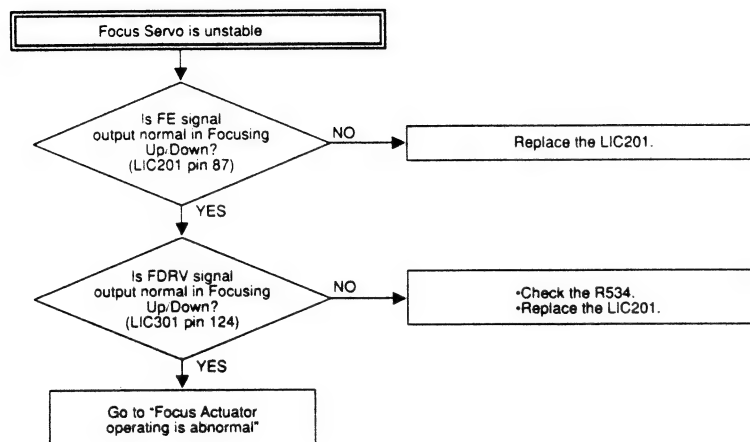
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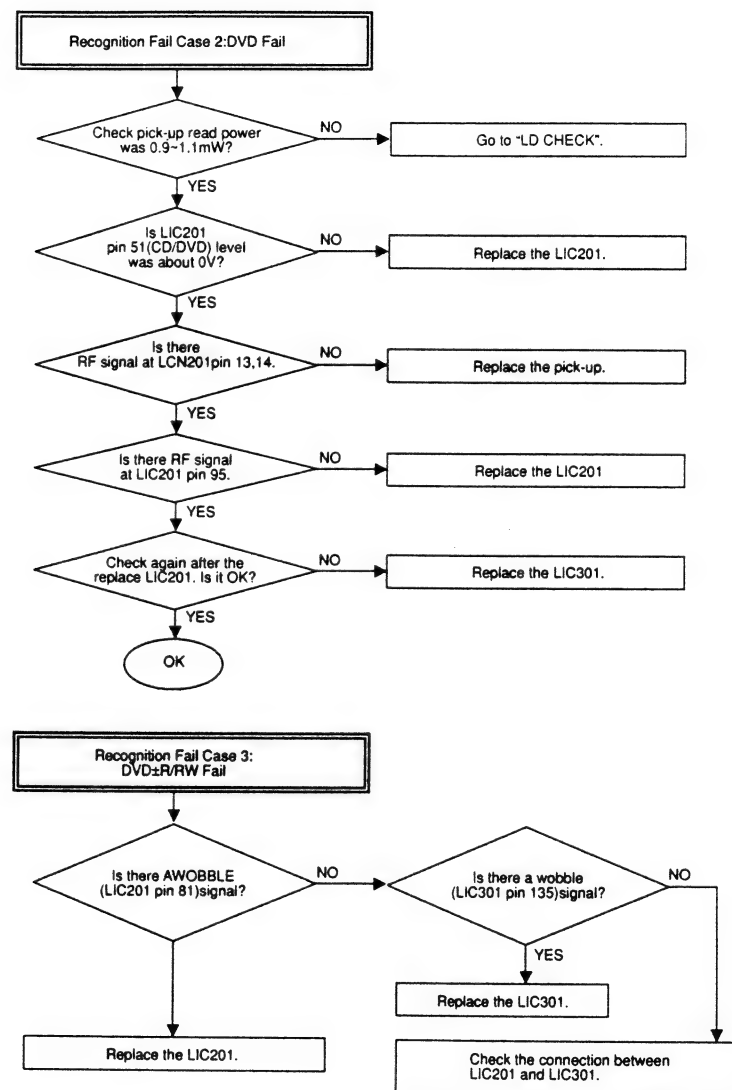
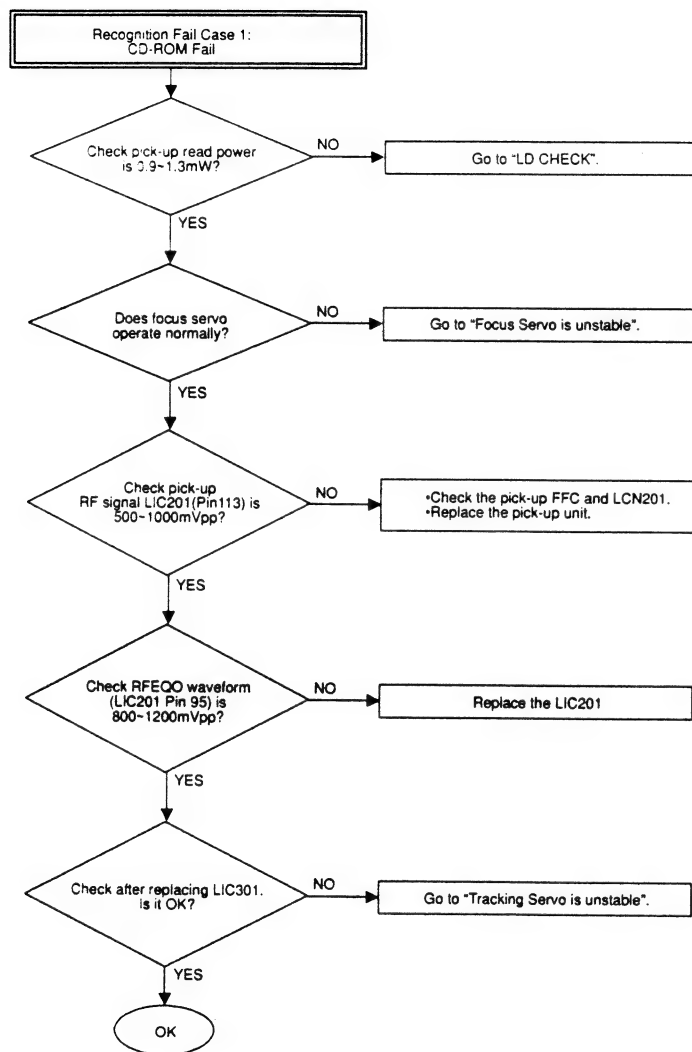
ELECTRICAL TROUBLESHOOTING GUIDE

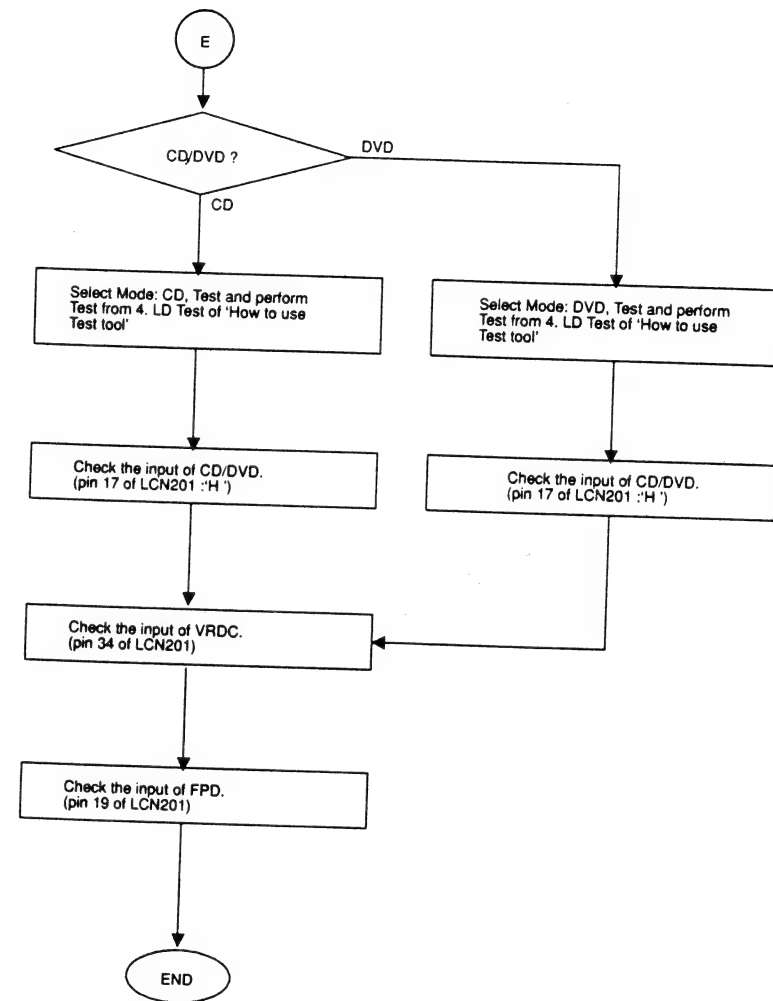
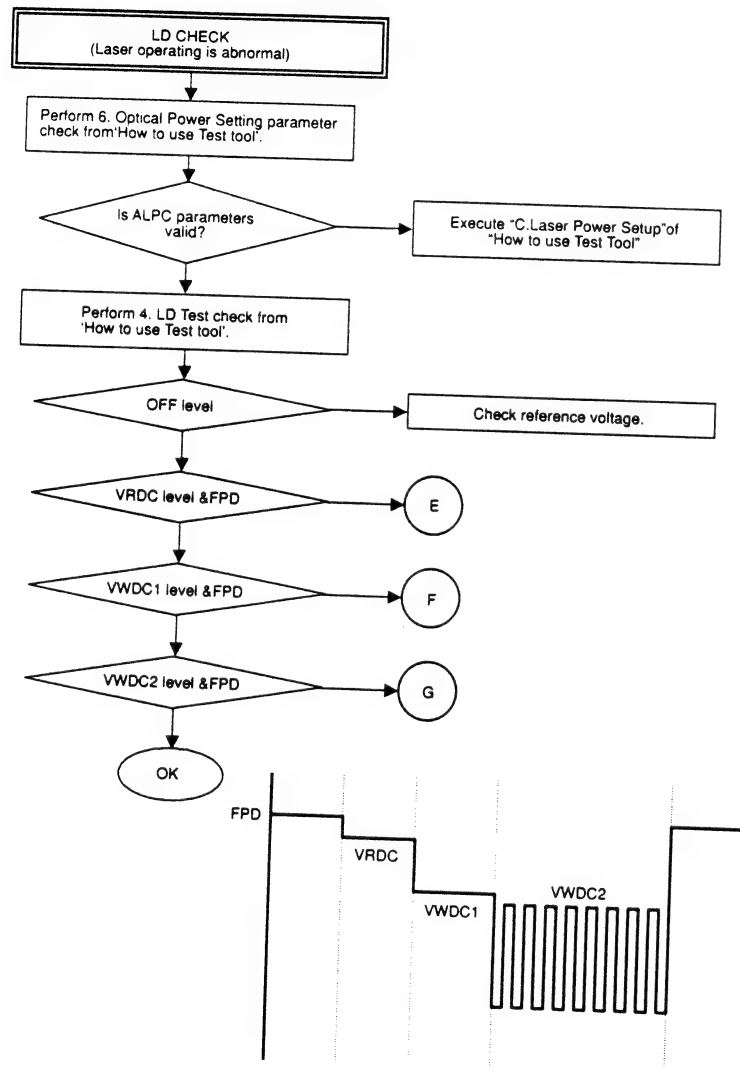


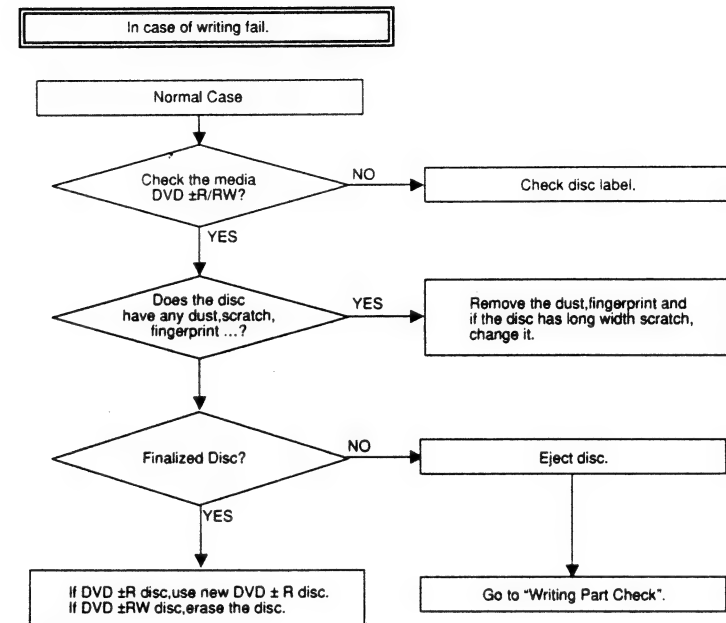
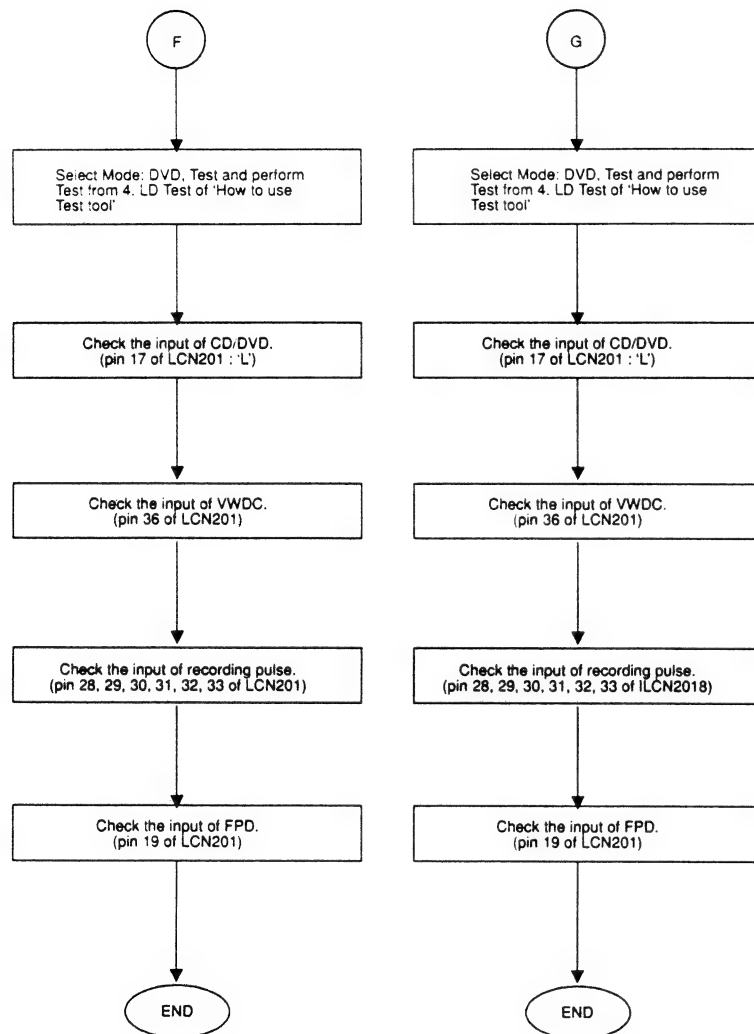


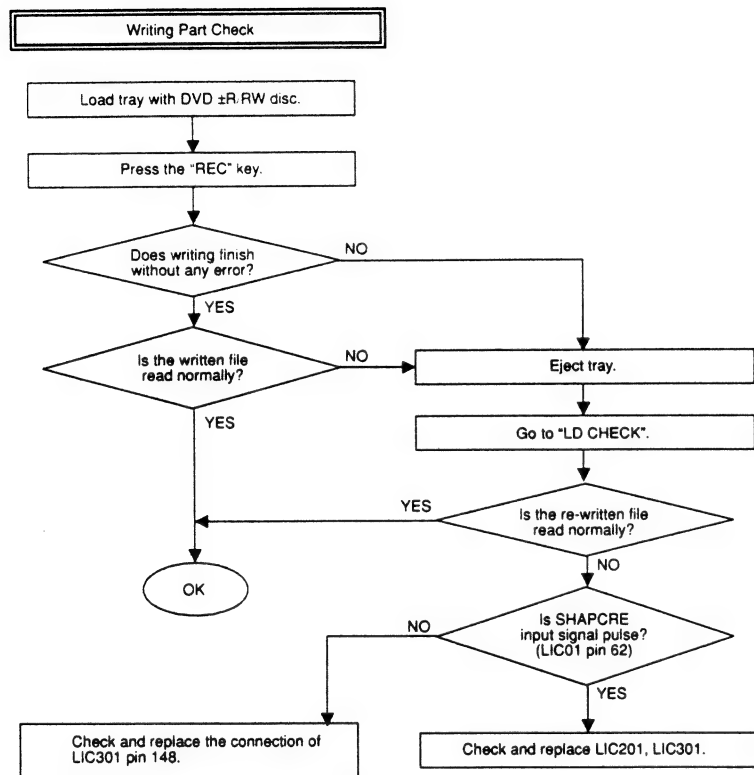






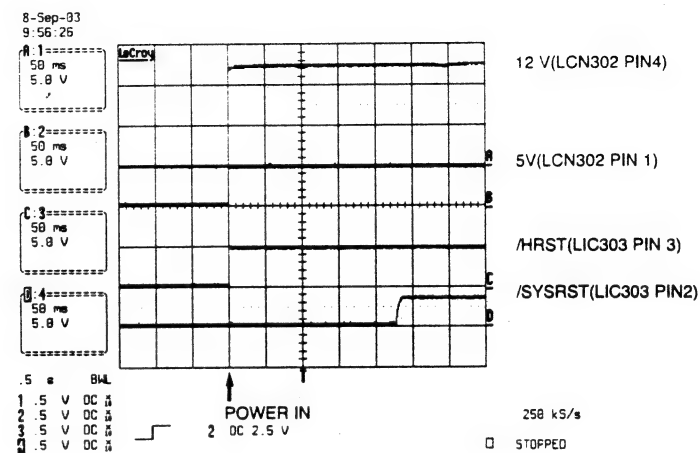




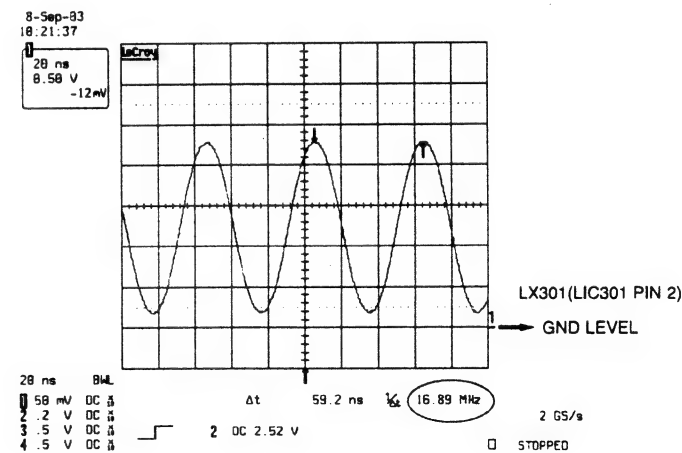


WAVEFORMS

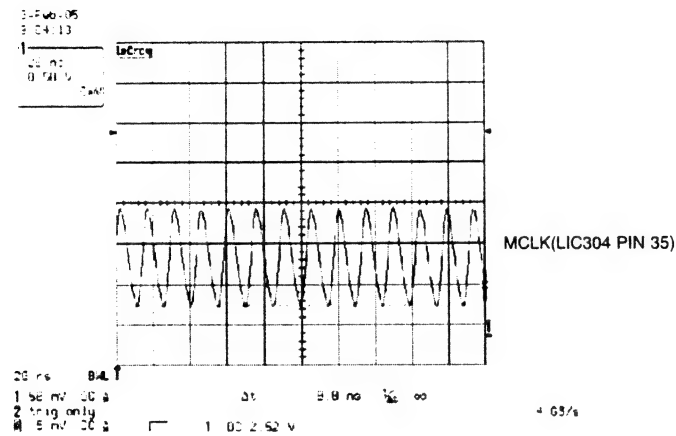
1. POWER & RESET Signal



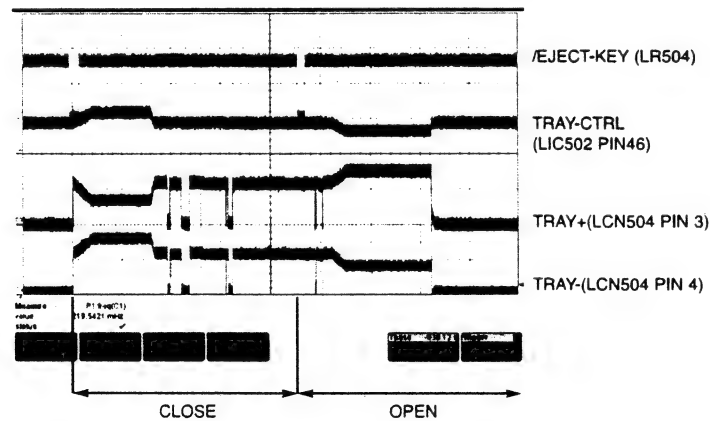
2. Main Clock1 for IC202 (16.9MHz)



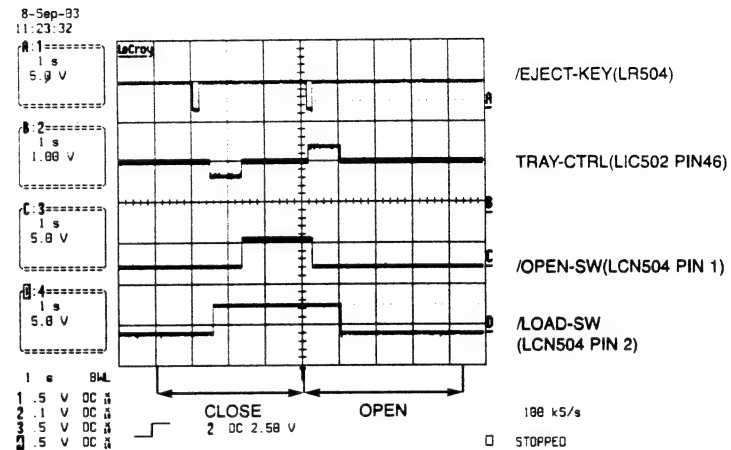
3. SDRAM Clock



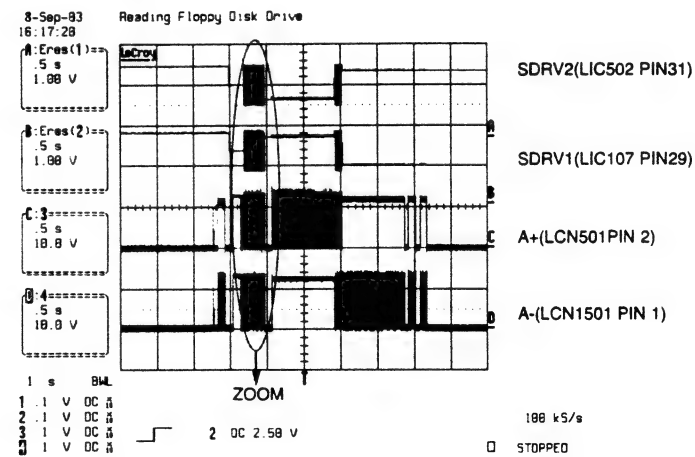
4. TRAY OPEN/CLOSE SIGNAL 1



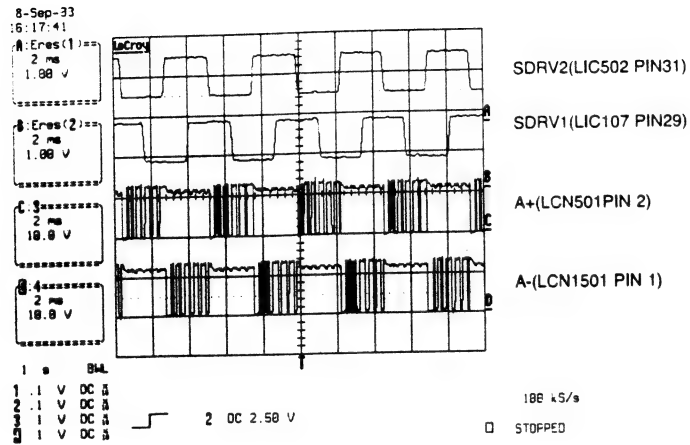
5. TRAY OPEN/CLOSE SIGNAL 2



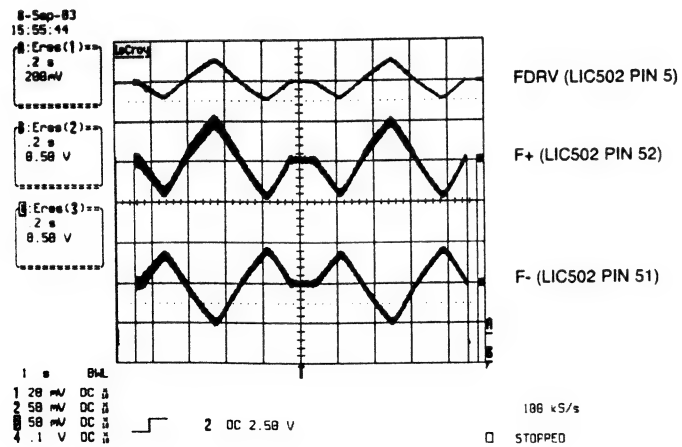
6. SLED MOVE SIGNAL 1



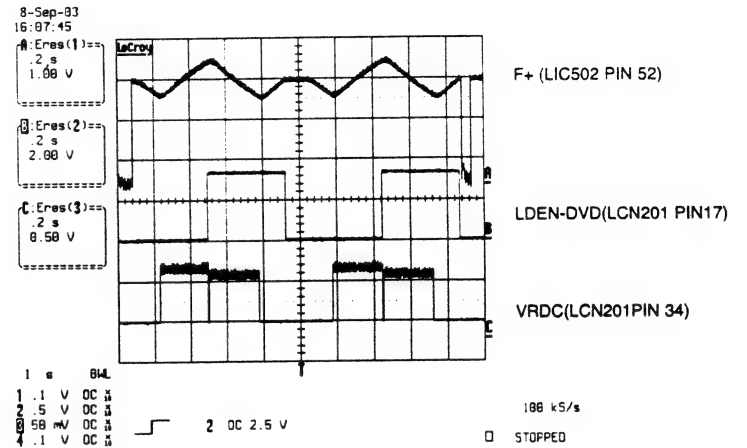
7. SLED MOVE SIGNAL 2



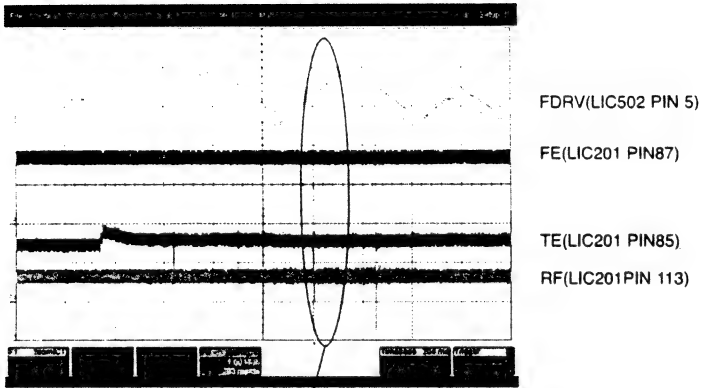
8. FOCUS SEARCH SIGNAL



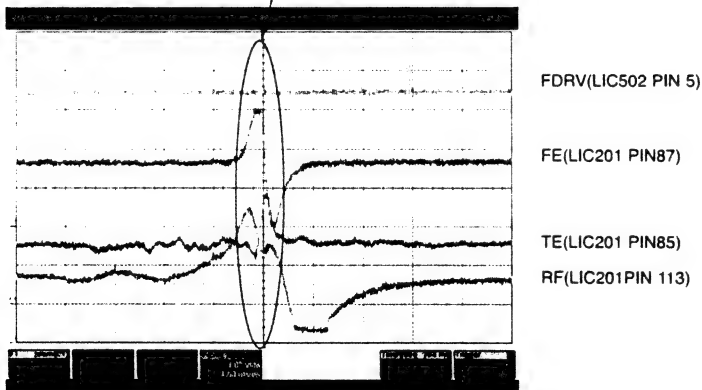
9. LASER TURN ON SIGNAL



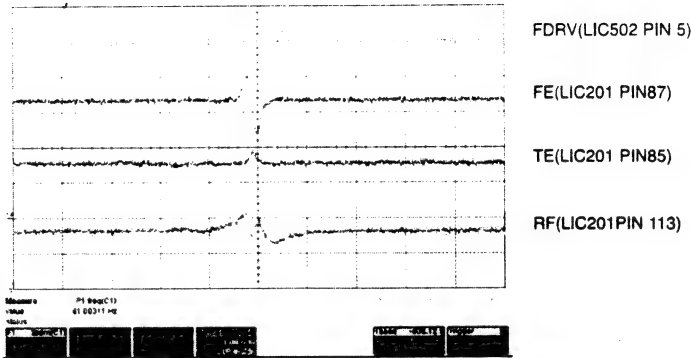
10. DISC TYPE JUDGEMENT WAVEFORM (CD SERIES)



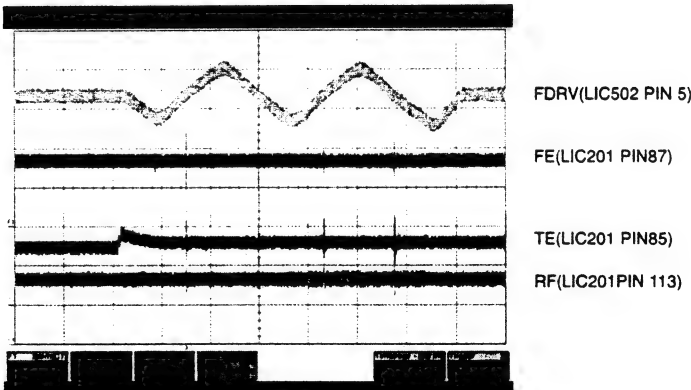
11. DISC TYPE JUDGEMENT WAVEFORM (CD&CD-R)



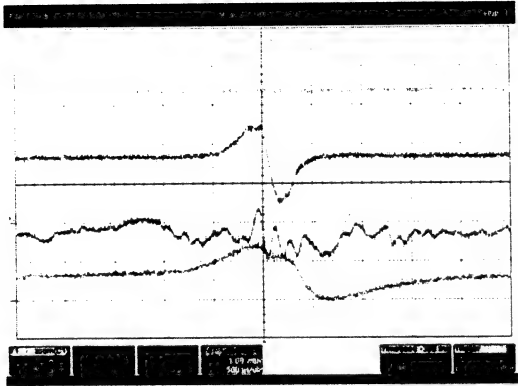
12. DISC TYPE JUDGEMENT WAVEFORM (CD-RW)



13. DISC TYPE JUDGEMENT WAVEFORM (DVD SERIES)

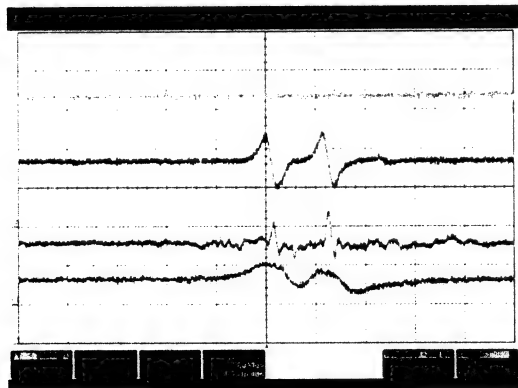


14. DISC TYPE JUDGEMENT WAVEFORM (DVD_SINGLE&R)



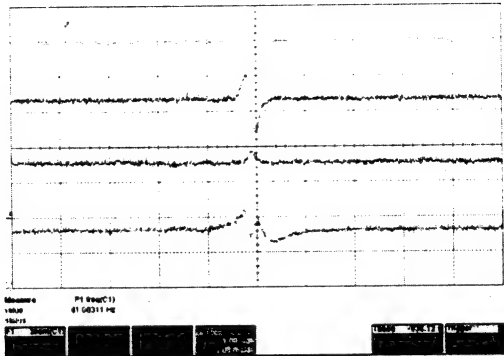
FDRV(LIC502 PIN 5)
FE(LIC201 PIN87)
TE(LIC201 PIN85)
RF(LIC201PIN 113)

15. DISC TYPE JUDGEMENT WAVEFORM (DVD_DUAL)



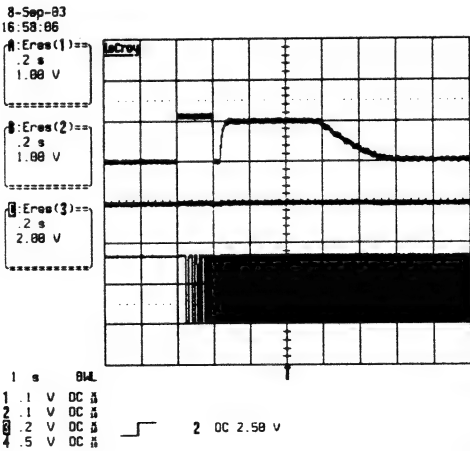
FDRV(LIC502 PIN 5)
FE(LIC201 PIN87)
TE(LIC201 PIN85)
RF(LIC201PIN 113)

16. DISC TYPE JUDGEMENT WAVEFORM (DVDRW)



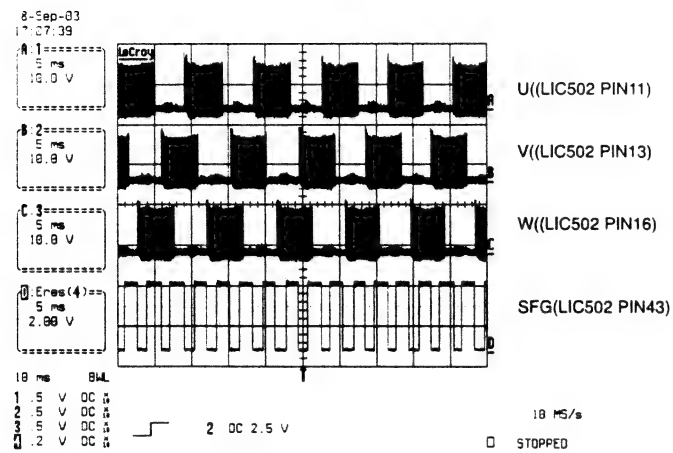
FDRV(LIC502 PIN 5)
FE(LIC201 PIN87)
TE(LIC201 PIN85)
RF(LIC201PIN 113)

17. SPINDLE WAVEFORM1

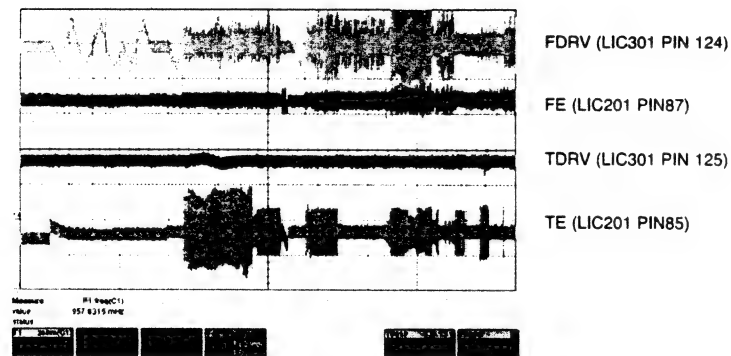


MDRV (LIC502 PIN 26)
REFOUT (LIC502 PIN 42)
SFG((LIC502 PIN43)

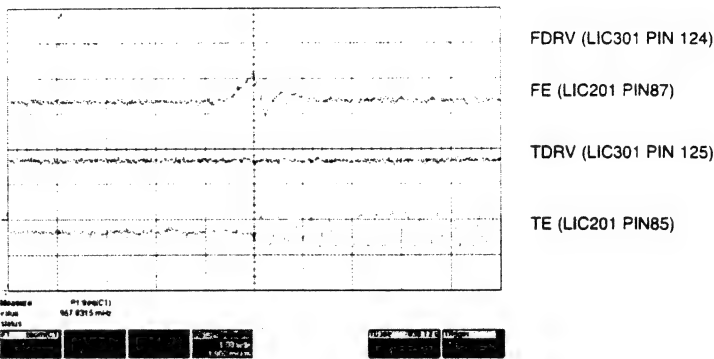
18. SPINDLE WAVEFORM2



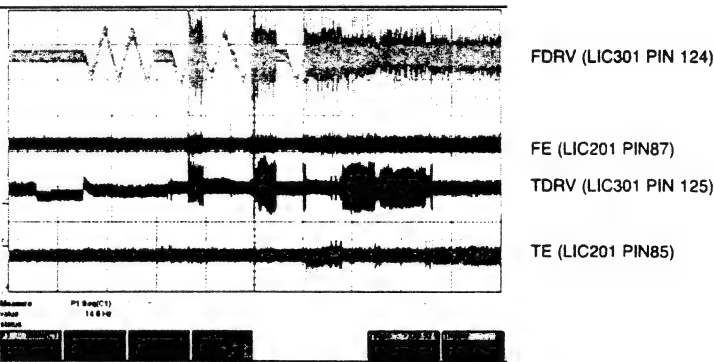
19. FOCUS ON SIGNAL(CD)



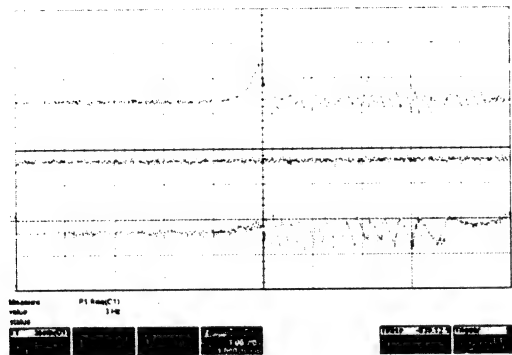
20. FOCUS ON SIGNAL(CD)



21. FOCUS ON SIGNAL(DVD)

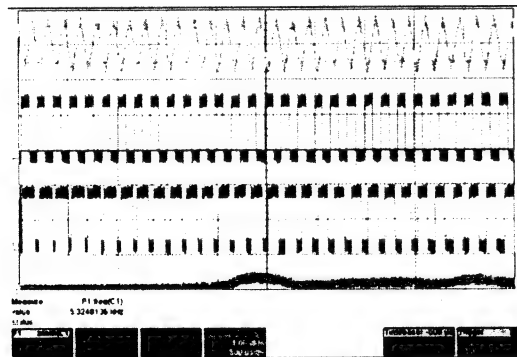


22. FOCUS ON SIGNAL (DVD)



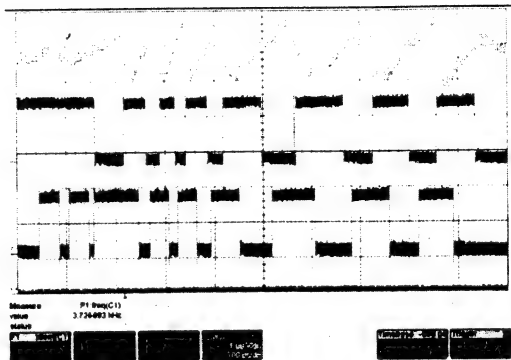
FDRV (LIC301 PIN 124)
FE (LIC201 PIN87)
TDRV (LIC301 PIN 125)
TE (LIC201 PIN85)

23. TRACK OFF SIGNAL(CD)



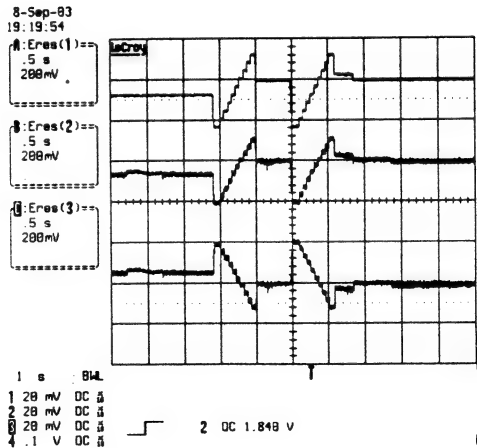
TE (LIC106 PIN85)
TZC(LIC106 PIN74)
MIRRBCA(LIC106 PIN77)

24. TRACK OFF SIGNAL(DVD)



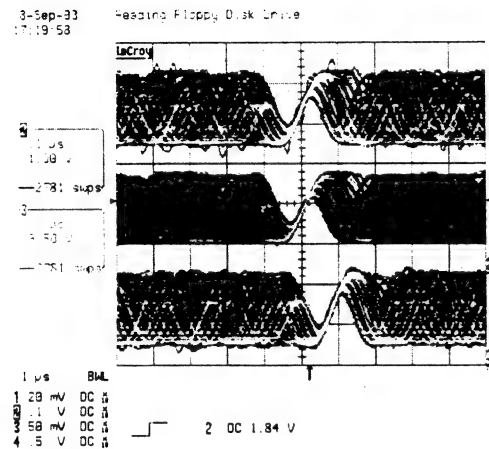
TE (LIC106 PIN85)
TZC(LIC106 PIN74)
MIRRBCA(LIC106 PIN77)

25. Tilt Driver signal(Disc reading)



TILTDREV(LIC502 PIN47)
TILT+(LIC502 PIN50)
TILT-(LIC502 PIN49)

26. RF WAVEFORM(DVD)



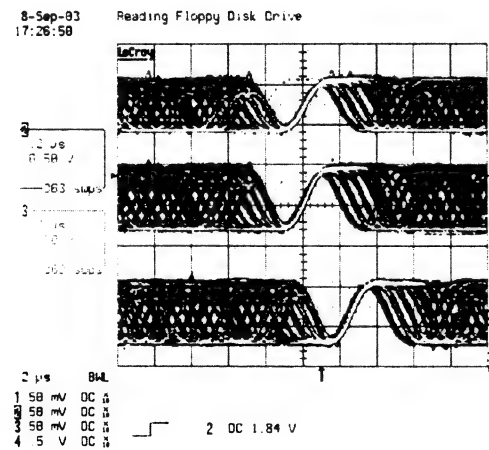
RFP(LIC201 PIN2)

RFO(LIC201PIN 113)

RFI(LIC201 PIN 95)

2 GS/s
STOPPED

27. RF WAVEFORM(CD)



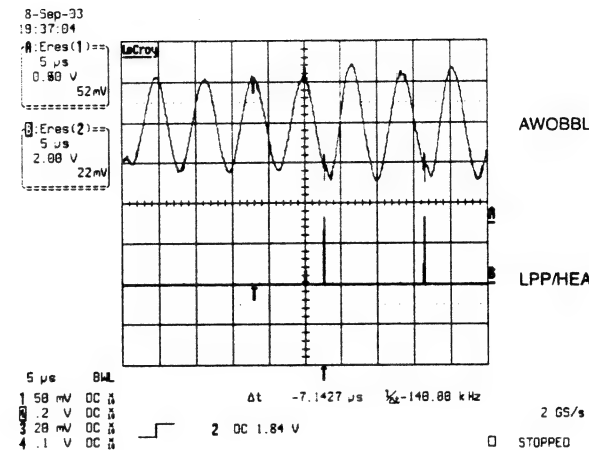
RFP(LIC201 PIN2)

RFO(LIC201PIN 113)

RFI(LIC201 PIN 95)

2 GS/s
STOPPED

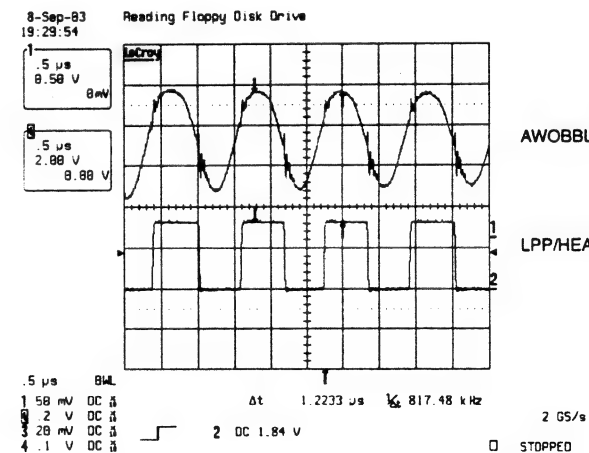
28. WOBBLE(DVD-R/RW)_READING



AWOBLE(LIC201 PIN81)

LPP/HEAD(LIC201 PIN 73)

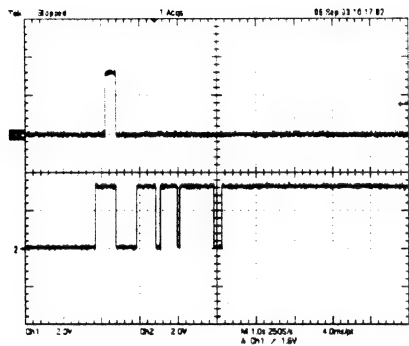
29. WOBBLE(DVD+R/RW)_READING& WRITING => X1 SPEED



AWOBLE(LIC201 PIN81)

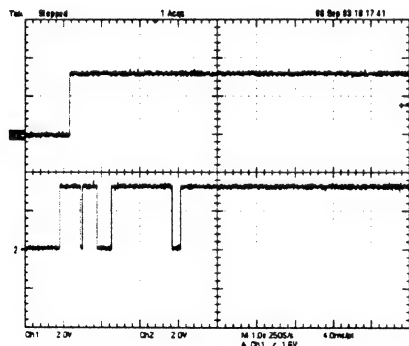
LPP/HEAD(LIC201PIN 73)

30. LD Enable(DVD)



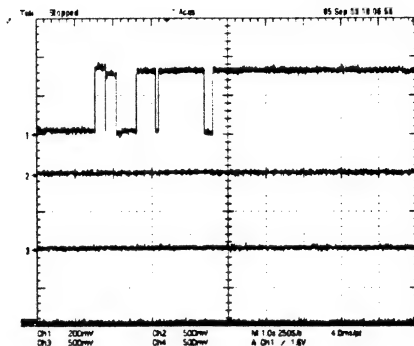
CD/DVD(LCN201 PIN 17)
LDEN(LCN PIN 38)

31. LD Enable(CD)



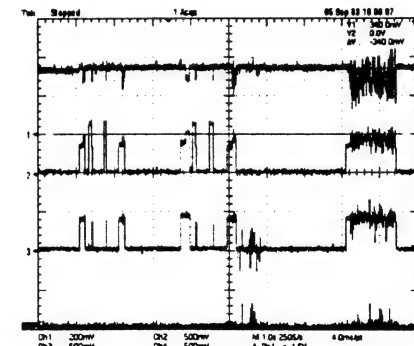
CD/DVD(LCN201 PIN 17)
LDEN(LCN102 PIN 38)

32. Laser Power(reading) _ DVD+RW



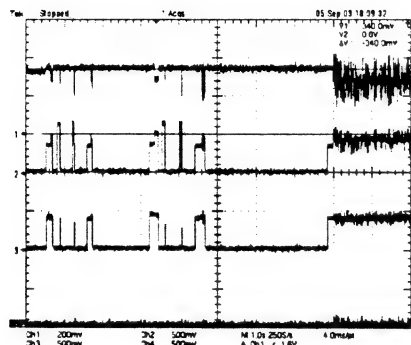
VRDC(LCN201 PIN 34)
VWDC(LCN201 PIN 36)
VWDC2(LCN201 PIN 35)
OPCTRG(LIC301 PIN 151)

33. Laser Power(Erase) _ DVD+RW



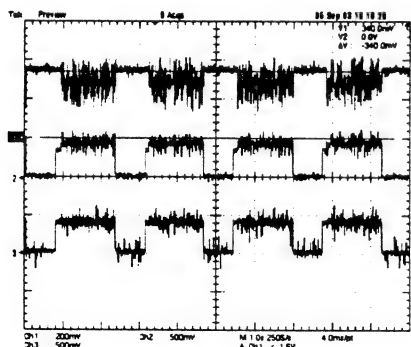
VRDC(LCN201 PIN 34)
VWDC(LCN201 PIN 36)
VWDC2(LCN201 PIN 35)
OPCTRG(LIC301 PIN 151)

34. Laser Power(Writing) _ initial state



VRDC(LCN201 PIN 34)
VWDC(LCN201 PIN 36)
VWDC2(LCN102 PIN 35)
OPCTRG(LIC301 PIN 151)

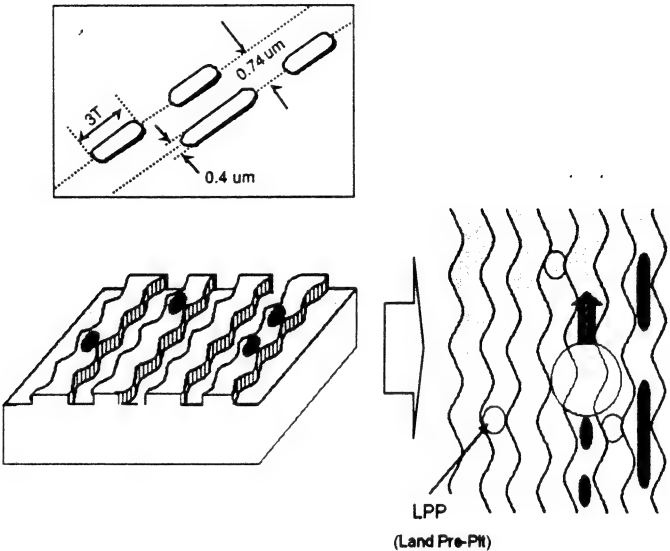
35.Laser Power(Writing)_Processing



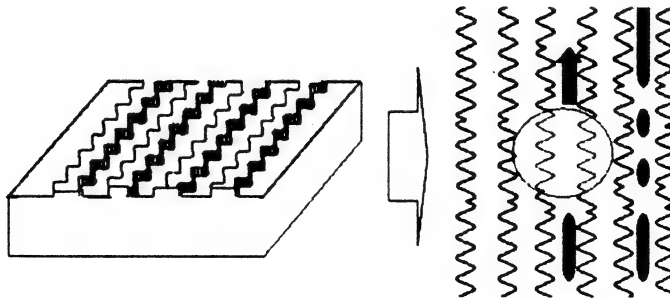
VRDC(LCN201 PIN 34)
VWDC(LCN201 PIN 36)
VWDC2(LCN201 PIN 35)

The difference of DVD-R/RW, DVD+R/RW discs and DVD-ROM
1. Recording Layer

- DVD-ROM (Read Only Disc)



- DVD+R/RW Disc

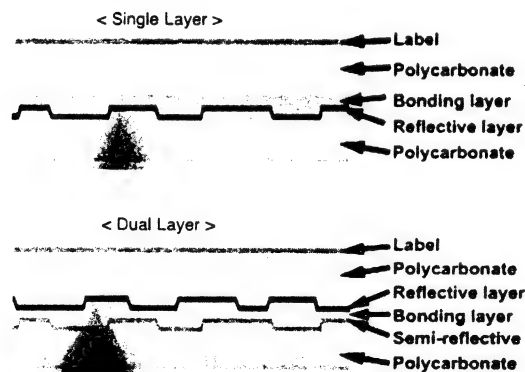


2. Disc Specification

	DVD-ROM		DVD-R	DVD-RW	DVD+R	DVD+RW
	Single-Layer	Dual-Layer				
Media Type	Read Only	Read Only	Dye	Phase change	Dye	Phase change
User data capacity	4.7GB	8.54GB	4.7GB	4.7GB	4.7GB	4.7GB
Wavelength	650nm	650nm	650nm	650nm	650nm	650nm
Reflectivity	45~85%	18~30nm	45~85%	18~30%	45~85%	18~30nm
Track pitch	0.74μm	0.74μm	0.74μm	0.74μm	0.74μm	0.74μm
Minimum pit length	0.4μm	0.4μm	0.4μm	0.4μm	0.4μm	0.4μm
Modulation	>0.6	>0.6	>0.6	>0.6	>0.6	>0.6
Channel bit-rate	26.16MHz	26.16MHz	26.16MHz	26.16MHz	26.16MHz	26.16MHz
Wobble Frequency	—	—	140KHz	140KHz	817.4KHz	817.4KHz
Addressing	26.16MHz	26.16MHz	Wobble & LPP	Wobble & LPP	Wobble(ADIP)	Wobble(ADIP)
Read Power (mW)					0.7 ± 0.1	0.7 ± 0.1
Write Power (mW)	—					
Jitter	<8%	<8%	<8%	<8%	<9%	<9%

3. Disc Materials

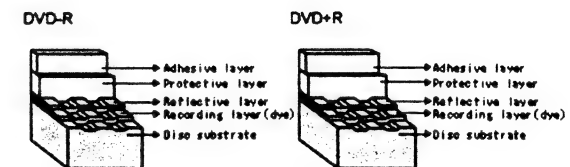
1) DVD-ROM



2) Recording format using organic dye material (DVD-R / DVD+R)

The format that records data through the creation of recorded marks by changing the organic dye material with a laser beam.

► Disc structure



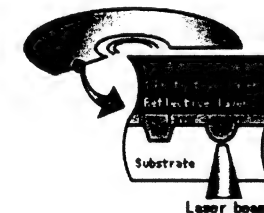
► Recording principles

[Recording]

Recording is done by changing the organic dye layer and the substrate with a laser. When a strong laser is applied to a disc, the temperature of the organic dye material goes up, the dye is decomposed and the substrate changes at the same time. At this time, a durable bit is created as is the case with a CD-ROM.

[Playback]

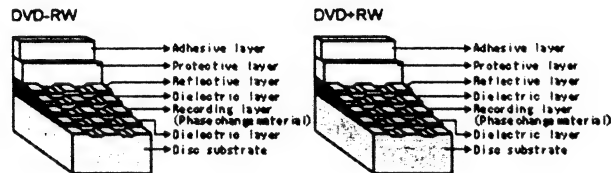
Signals are read with the differences of the reflection of a laser from pits.



3) Recording format using phase-change recording material (DVD-RW / DVD+RW)

- Data is recorded by changing the recording layer from the amorphous status to the crystalline status, and played back by reading the difference of the reflection coefficient.
- Amorphous: Non-crystalline.

► Disc structure



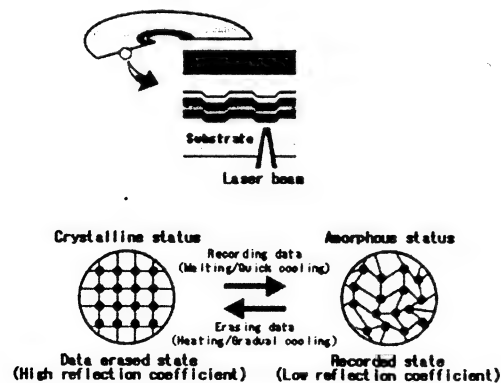
► Recording principles

[Recording]

When a high-power laser is applied to the recording material, it melts and then becomes amorphous with a low reflection coefficient when it quickly cools off. When a mid-power laser is applied to heat gradually the recording material and then gradually cools it off, it becomes crystal with a high reflection coefficient.

[Playback]

A low-power laser is used for playback. The amount of reflected light depends on the status (amorphous or crystalline) of the recording material. This is detected by an optical sensor.

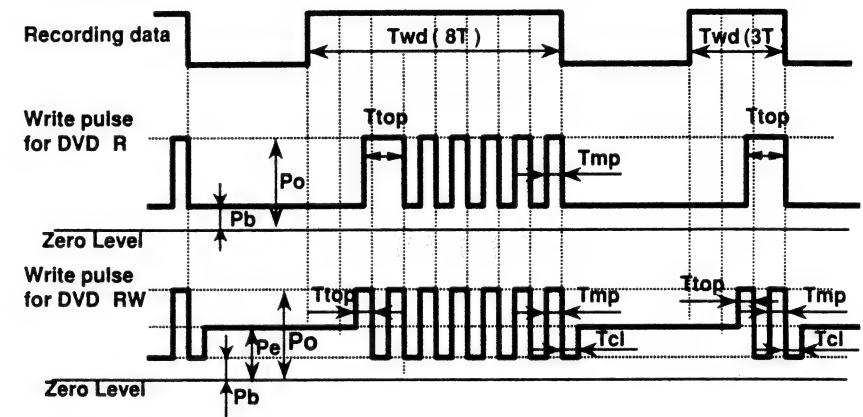


To make recordings, it is necessary to modulate the write pulse, which is called "Write Strategy".

There can be many types in Write Strategy. Typically Write Strategy for DVD \pm R has NMP(Non Multi-Pulse) type and MP(Multi-Pulse) type. In NMP type each single mark is created by subsequent separated short pulses. In MP type each single mark is created by one continuous pulse.

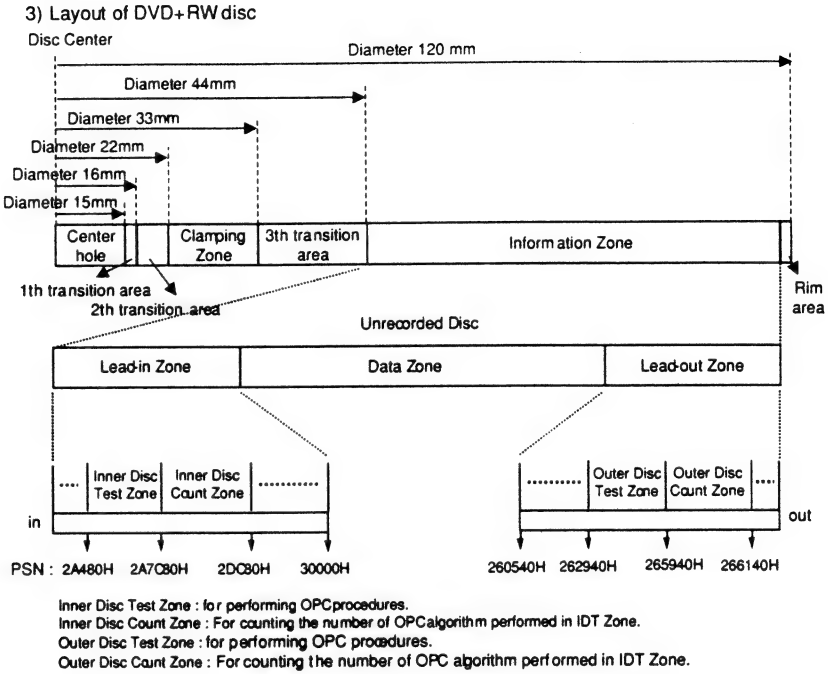
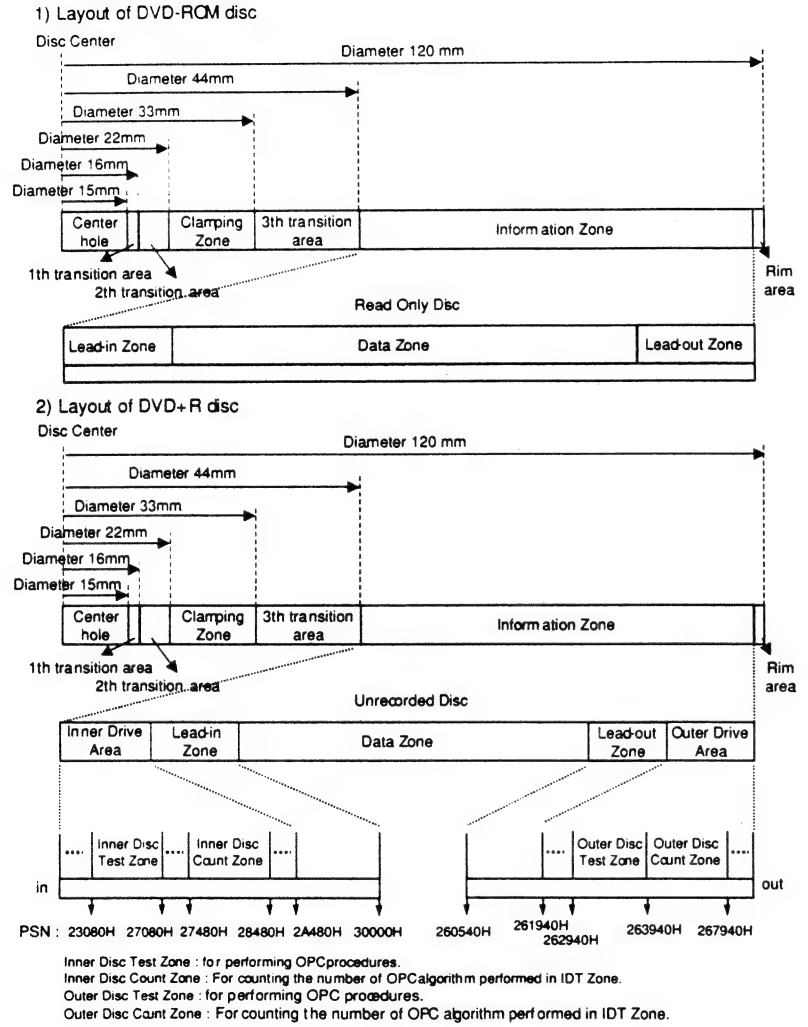
Write Strategy for DVD \pm RW has Type 1 and Type2. In Type 1 the mark with nT width is created by one top pulse and $(n-2)$ multi-pulses. Thus mark 3T is made by one top pulse and one multi-pulse. In Type 2 the mark with nT width is created by one top pulse and $(n-3)$ multi-pulses. Thus mark 3T is made by one top pulse only.

RL-02A uses MP type Write Strategy for DVD \pm R and Type 1 for DVD \pm RW as shown below.

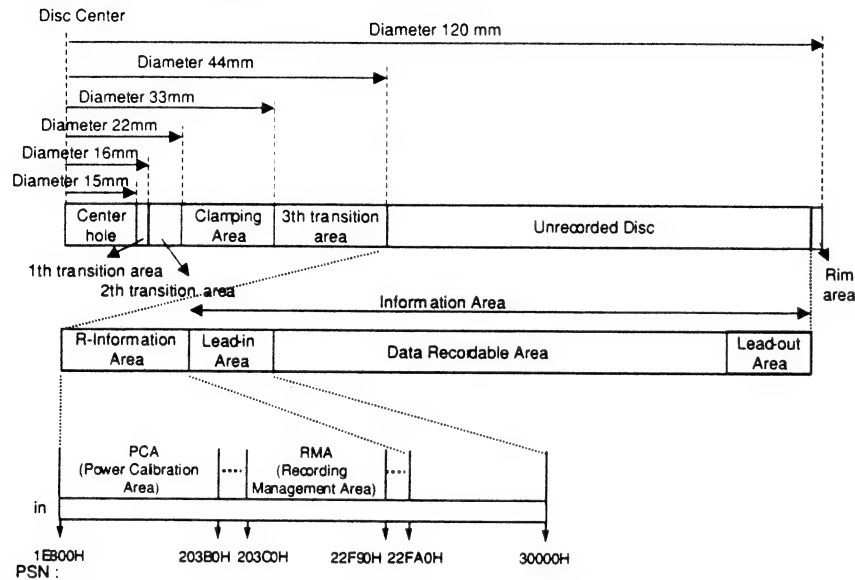


Po : Write Power (Peak Power)
Pe : Erase Power
Pb : Bias Power

4. Organization of the Inner Drive Area, Outer Drive Area, Lead-in Zone and Lead-out Zone

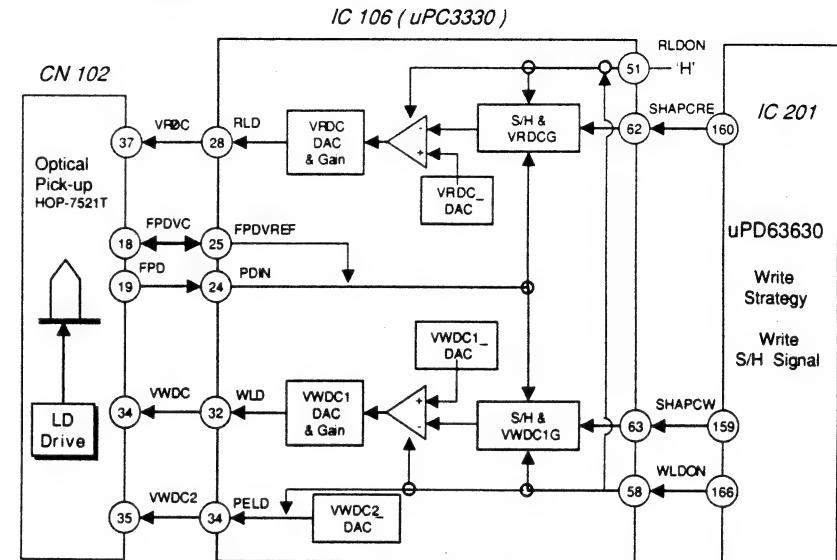


4) Layout of DVD-R/RW disc



5. ALPC(Automatic Laser Power Control) Circuit

1) Block Diagram



2) ALPC(Automatic Laser Power Control) Circuit Operation

ALPC function in CD-R/RW, DVD+R/RW analog front-end is for constant power level control purpose. Based on the accurate power sensor (FPD) in OPU, ALPC feedback loop maintains constant power level against laser diode's temperature variation.

There are two power control loops in uPC3330, which are used with different combination for different applications. Generally, the first ALPC loop is used for read-power control. The 2nd ALPC loop is used for write(erase) power control for CD-R/RW and DVD+R/RW disc.

Owing to the small signal level in read-power control mode, the first ALPC loop amplifies the FPD signal to enhance the accuracy of read power control. The built-in 10-bit DAC (VRDC_DAC) is used to set the read power level. Moreover, the 2nd ALPC loop is used for high power control. The built-in 10-bit DAC (WVDC1_DAC) is used to set the wanted power level.

And the register WVDC1G is employed to adjust the gain of FPD signal.

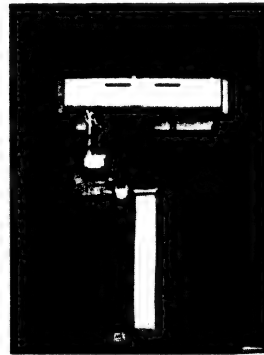
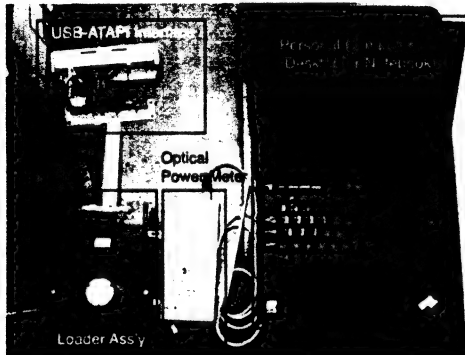
The following potentiometers (VRDC_DAC, WVDC1_DAC, and WVDC2_DAC) and amplifiers (VRDCG and WVDC1G) are used to set the wanted levels of the output pins RLD, WLD, and PELD

How to use test tool

1. ALPC Measurement System Configuration

In order to measure and adjust DVD RW optical power, The following measurement equipments are needed.

- ◆ Compulsory equipment
 - ① Optical Power meter & Sensor (ADVANTEST, TQ8210/Q82017A or equivalent)
 - ② Personal Computer (Pentium 3, 500MHz Above, , RAM:64M Above, Win98 Above)
 - ③ Adjustment Program (Dragon or ALPC) for SVC, ALPC Program recommended
- ◆ FI optional equipment
 - ① USB-ATAPI Interface (needed when using USB Port from the laptop computer without ATAPI interface or a desktop computer)
 - ② Connector-ATAPI Interface Board(Part Mo:6881R-7677A) (needed when ATAPI is not attached to Loader)



Connector-ATAPI Interface Board

2. ALPC Program Configuration

ALPC Program consists of total 4 files.

ALPC.exe
LgBada.dll
modelnm.txt
WNASPI32.DLL

These 4 files should be located in one directory.
ALPC.exe is a program execution file.
modelnm.txt is a configuration file.

Determine how to connect

The following contents are included when you open "modelnm.txt" file.

The following contents are included when you open LGE connect=0

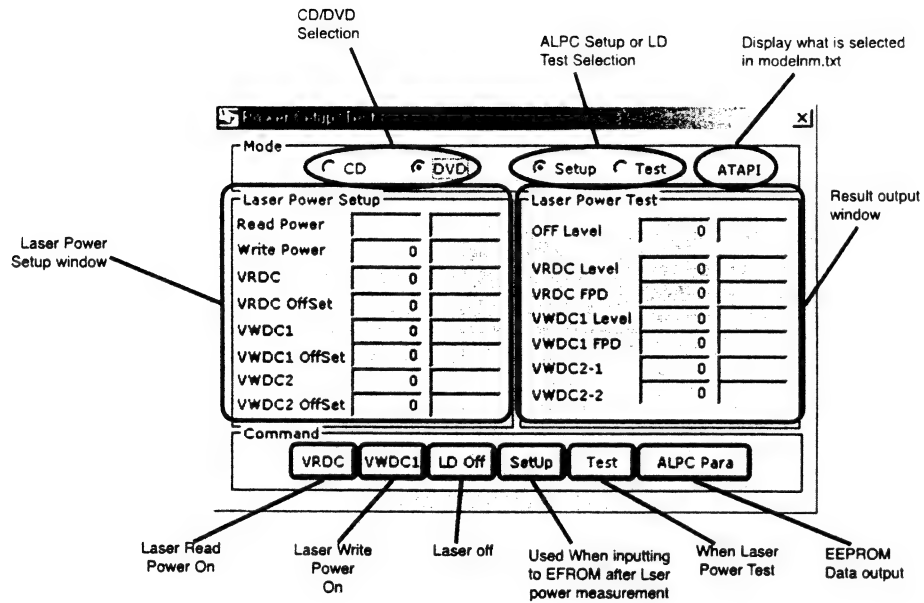
connect=0 is the item which you can determine whether you use Serial or ATAPI.

0 : ATAPI
1 : Serial

Thus, select connect=0 to use ATAPI, or select connect=1 to use Serial, then save the file.
(For SVC, ATAPI setting is recommended.)

3. Running ALPC Program

When running ALPC.exe file, the following screen appears.



4 LD Test

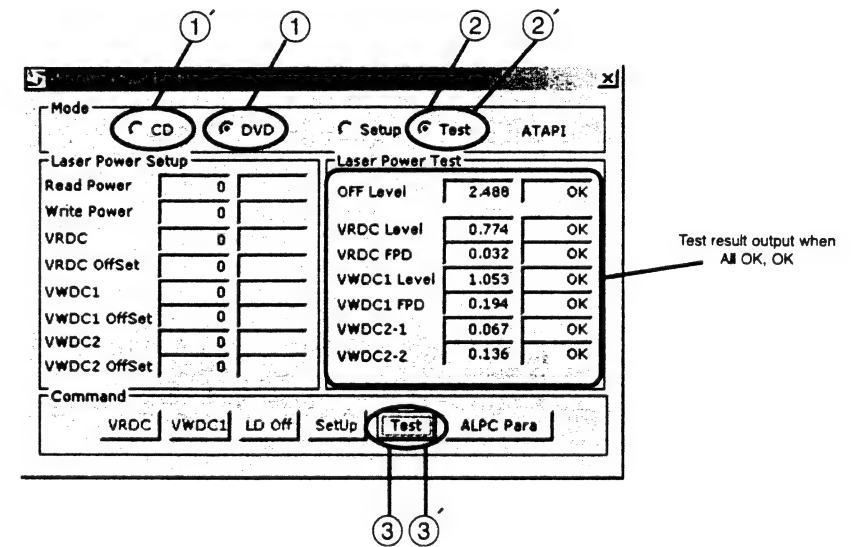
* Test DVD LD

- ① Select DVD mode
- ② Select Test mode
- ③ Click Test

* Test DVD CD

- ① Select CD mode
- ② Select Test mode
- ③ Click Test

Section	Off	VRDC	VR_FPD	VWDC1	VW_FPD	VW2-1	VW2-2
CD	2.4±0.08	0.53±0.22	0.02±0.01				
DVD	2.4±0.08	0.7±0.2	0.04±0.01	0.43±0.05	0.2±0.02	0.08±0.02	0.2±0.03



Specification can be changed according to pick-up type, circuit, program, and chipset.
If specification is changed, program can be sent by supervisor.
Specification above is temporary reference.

5. Optical Power Setting

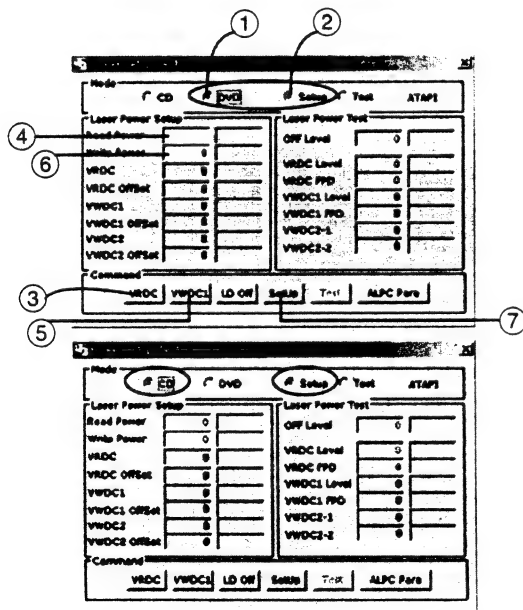
When replacing Travers ass'y including Pick-up or Loader PCB, Optical Power Setting should be performed for Pick-up and Loading PCB's matching.

1 DVD LD optical Power Setting

- Select DVD and Setup mode
- Push **[F1]**. (Read Power On. Strong Red light can be seen from pick up optical lens.)
- Measure optical power.
- Write measurement value in Read Power.
- Push **[F2]**. (Write power On.) (Caution) Light is very strong. Never look at the light directly.
- Measure optical power
- Write measurement value in Read Power and push LD off **[F3]**.
- Push **[F4]**. (Measurement value is inputted to EEPROM)

2 DVD LD optical Power Setting

- Select CD and Setup mode
- Push **[F1]**. (Read Power On. Weak Red light can be seen from pick up optical lens.)
- Measure optical power.
- Write measurement value in Read Power.
- Push **[F2]**. (Write power On. Weak Red light can be seen.)
- Measure optical power and push LD off **[F3]**.
- Write measurement value in Read Power.
- Push **[F4]**. (Measurement value is inputted to EEPROM)



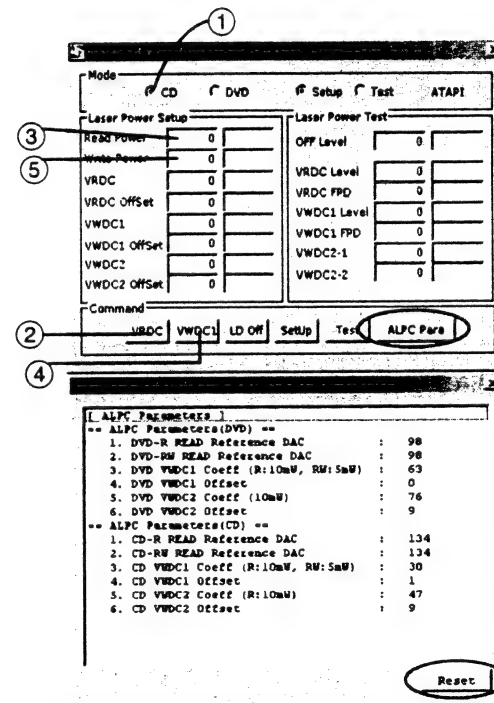
6. Optical Power Setting Parameter Check

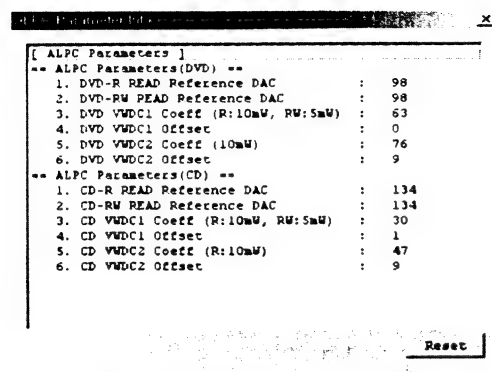
Use when defective happens even though LD test result is normal.

When defective can be found but power test result is OK. You need to check current settings whether they are proper or not. In this case, Pressing **[F4]** will display ALPC Parameter Info window and show current optical power settings recorded in EEPROM(IC302).

Write down these settings on the paper, perform optical power setting and press **[F4]** again, then new optical power settings will appear. Compare these two parameters. If there is a big difference, optical power setting may have been wrong at first or pick-up optical output may have been changed. If pick-up is normal, problem can be solved by resetting optical power without replacing pick-up.

In order to remove previous ALPC Parameter from ALPC Parameter Info, press **[F4]** at the bottom of ALPC Parameter Info window.





[VALID ALPC Parameters]

<CD>

- | | |
|-----------------------------|------------|
| 1) CD-R READ Reference DAC | : 70 ~ 100 |
| 2) CD-RW READ Reference DAC | : 70 ~ 100 |

<DVD>

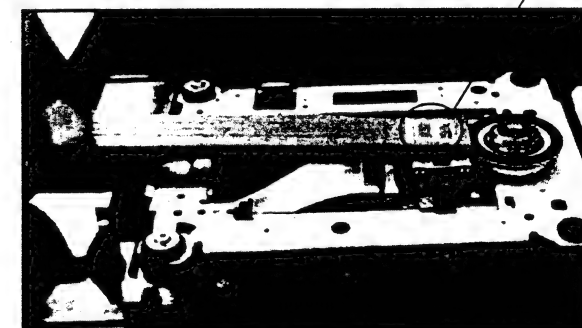
- | | |
|------------------------------|------------|
| 1) DVD-R READ Reference DAC | : 42 ~ 107 |
| 2) DVD-RW READ Reference DAC | : 42 ~ 107 |
| 3) VWDC1 | : 35 ~ 65 |
| 4) VWDC1 Offset | : 0 ~ 6 |
| 5) VWDC2 | : 20 ~ 43 |
| 6) VWDC2 Offset | : 0 ~ 10 |

Appendix. How to measure optical power

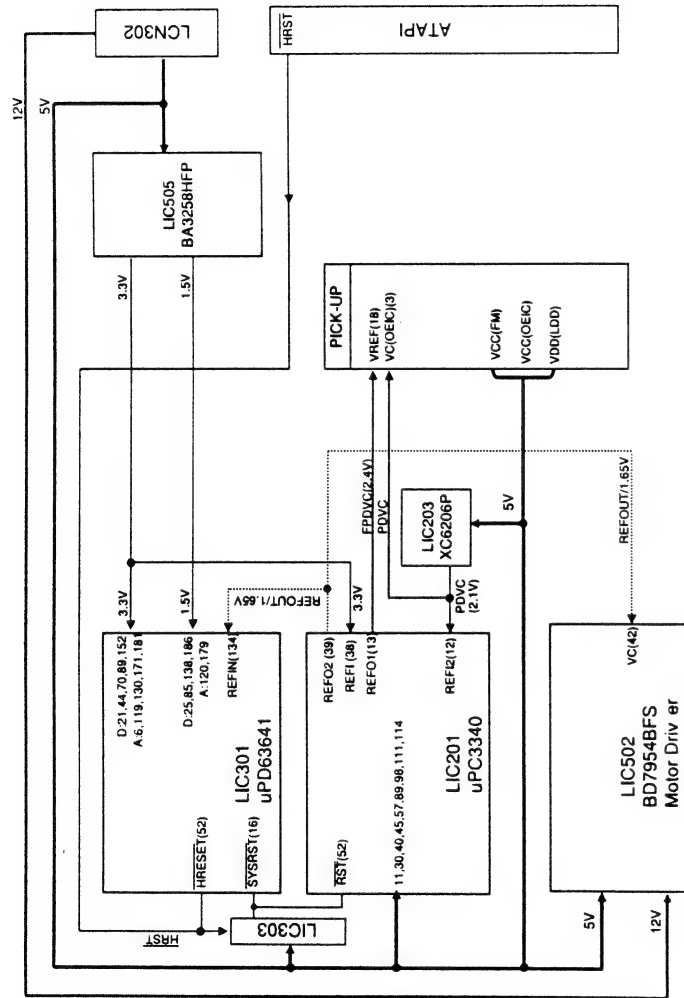
Optical power measurement is measuring actual optical power coming out from an object lens with LD turned on, thus, in order to measure optical power, LD should be turned on and environment need to be dark enough. If necessary, Cover the top side of the sensor with black paper or hand when measuring. Generally, fluorescent light is about 50 μ W, sun light is about 100 mW. so, If this is ignored, optical power setting may not be set correctly.

Optical power measurement procedure

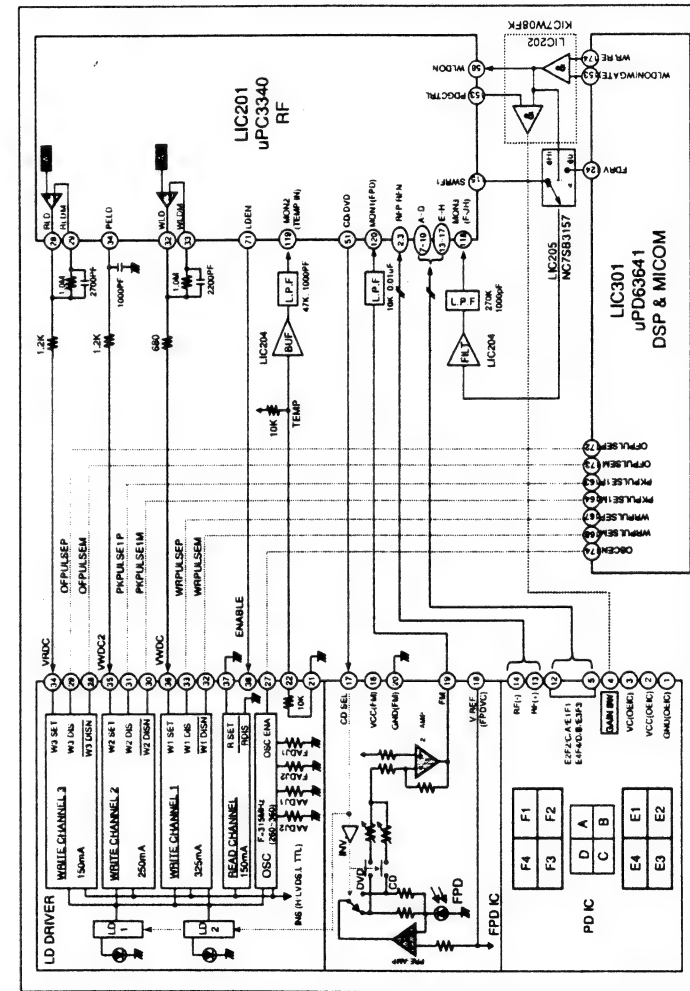
1. Adjust optical power meter's λ (wave length) to DVD. (Generally 660 nm)
2. Turn DVD LD on.
3. Place sensor less than 3mm apart from pick-up object lens, perpendicular to lens.
Adjust position so that the center of object lens match to mark on the sensor.
4. Read monitor's value. (Read Maximum value as moving position slightly)
(Check working unit. Unit should be mW. When LD is dead, μ W or nW unit may not be read correctly.)
5. Multiply monitor's value by 100, round off to the nearest integer, then write constant part.
6. Adjust optical power meter's λ (wave length) to CD. (Generally 780 nm)
7. Turn CD LD on.
8. Repeat step 3~5 above.



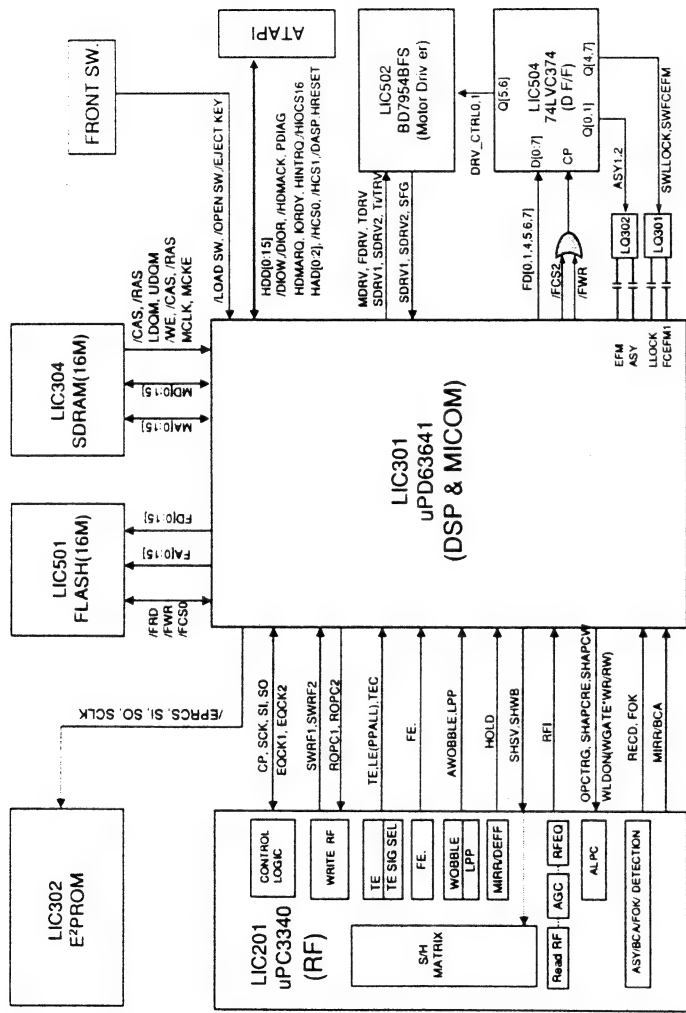
1. OVERALL BLOCK DIAGRAM



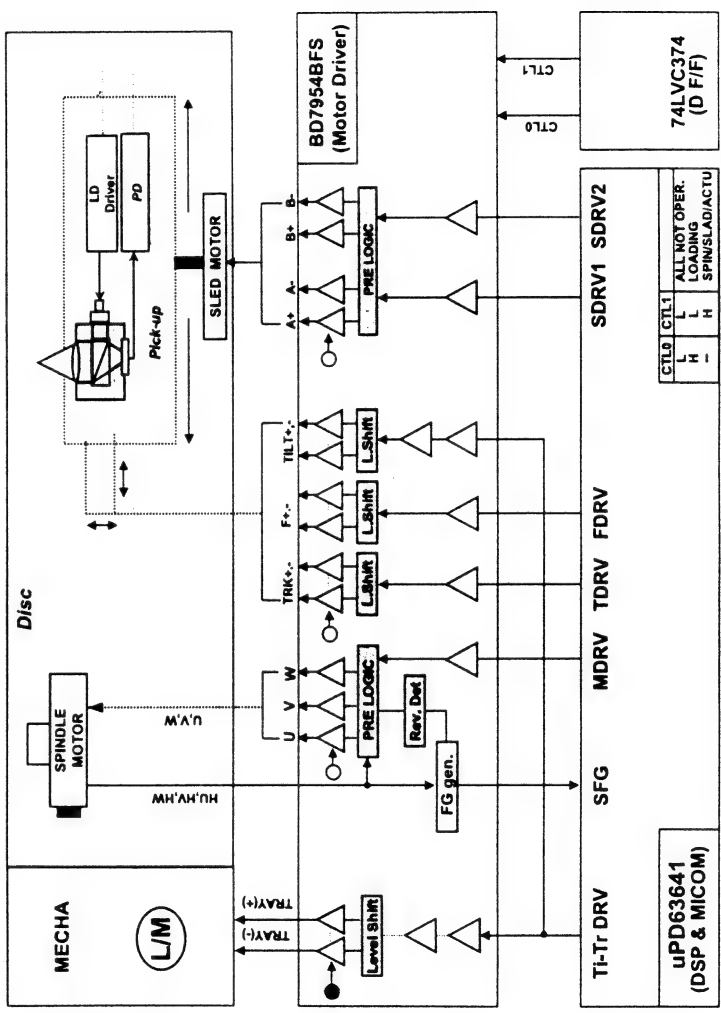
2. DSP BLOCK DIAGRAM



3. μ -COM BLOCK DIAGRAM

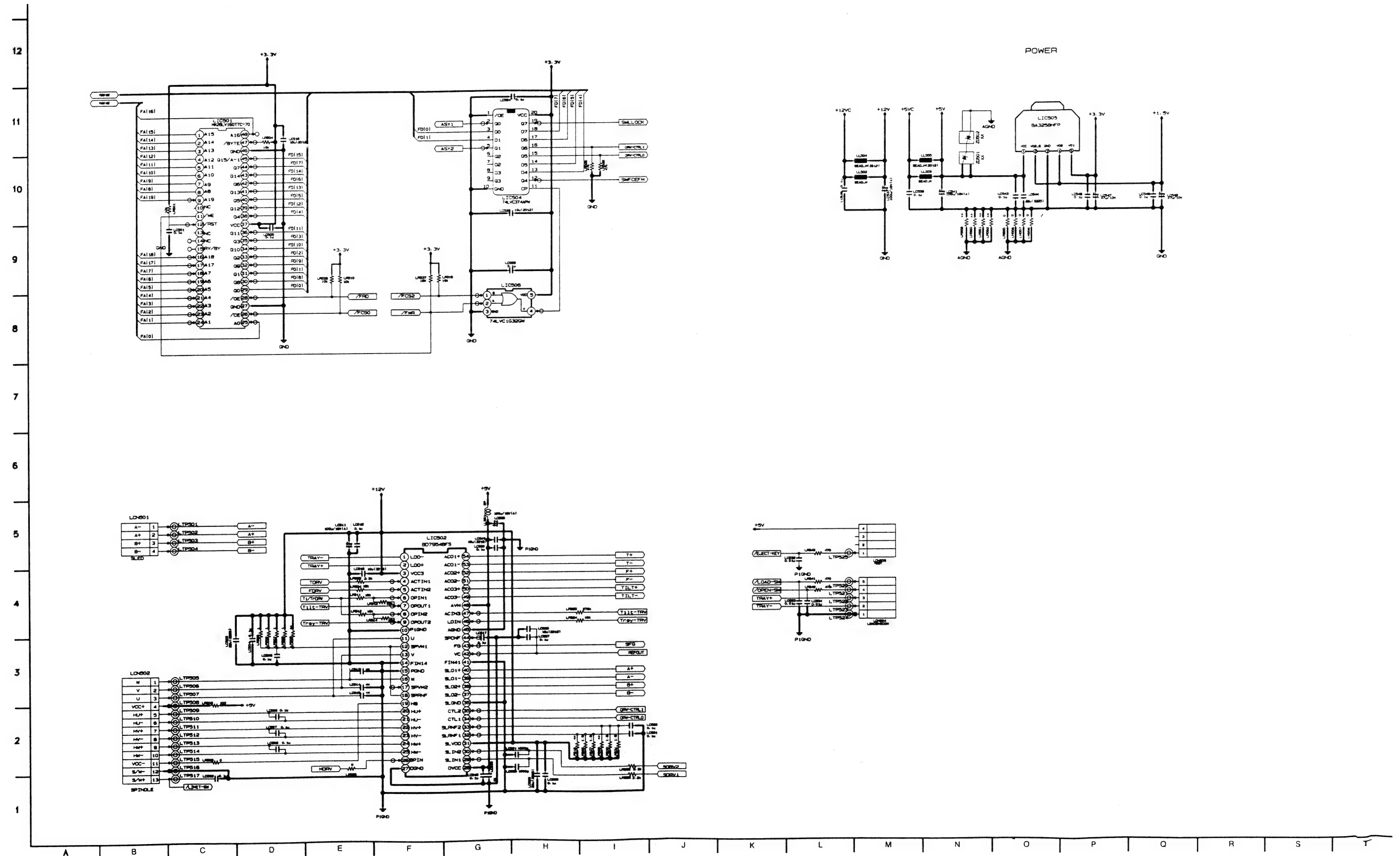


4. RF BLOCK DIAGRAM

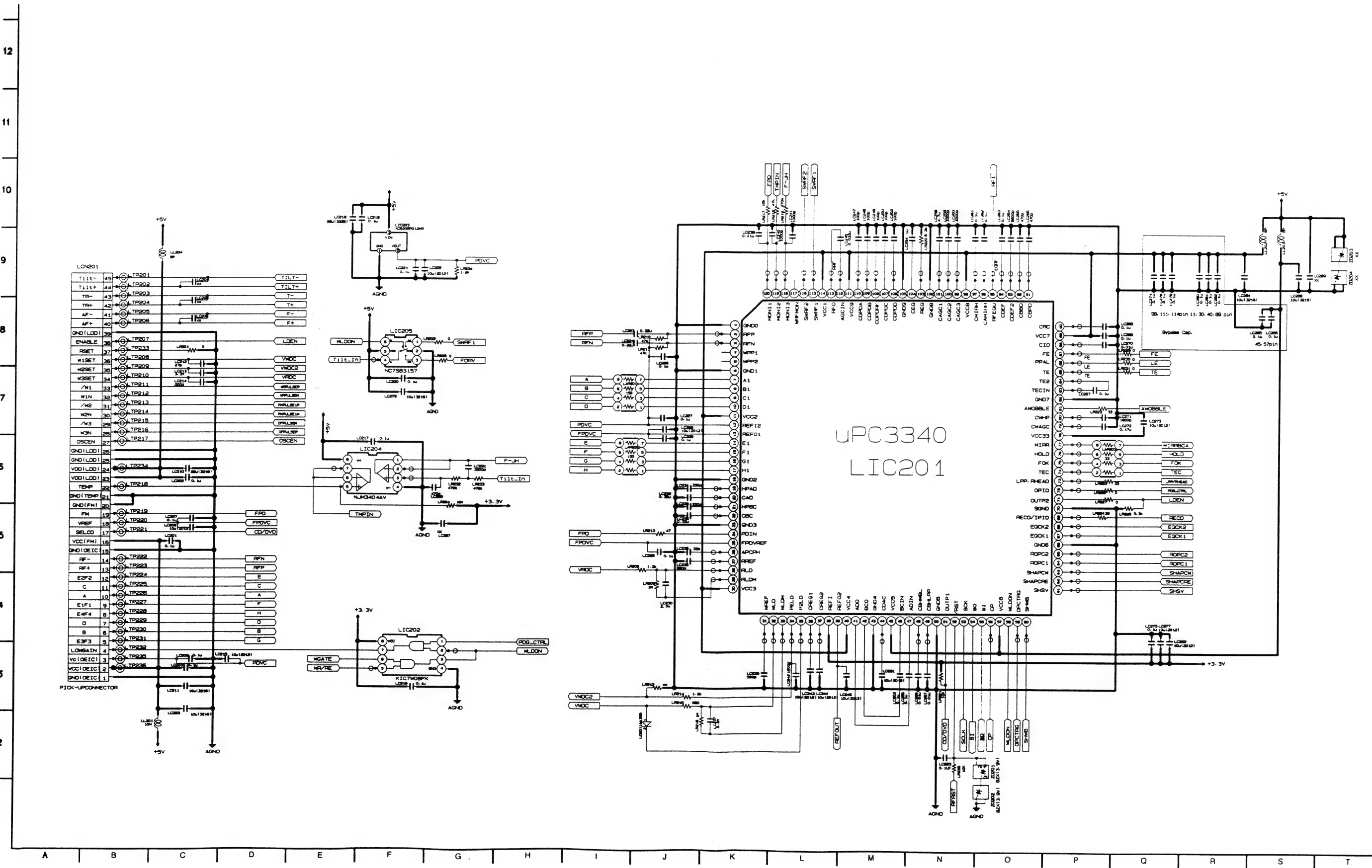


CIRCUIT DIAGRAMS

1. RF CIRCUIT DIAGRAM



2. DSP CIRCUIT DIAGRAM



UPD63641
LIC301

Component List:

- LTP301
- LTP302
- LTP303
- LTP304
- LTP305
- LTP306
- LTP307
- LTC304
- LTC305
- LTC306
- LTC307
- AT3008
- AT3009
- AT3010
- AT3011
- AT3012
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- AT3199
- AT3200

[illegible]

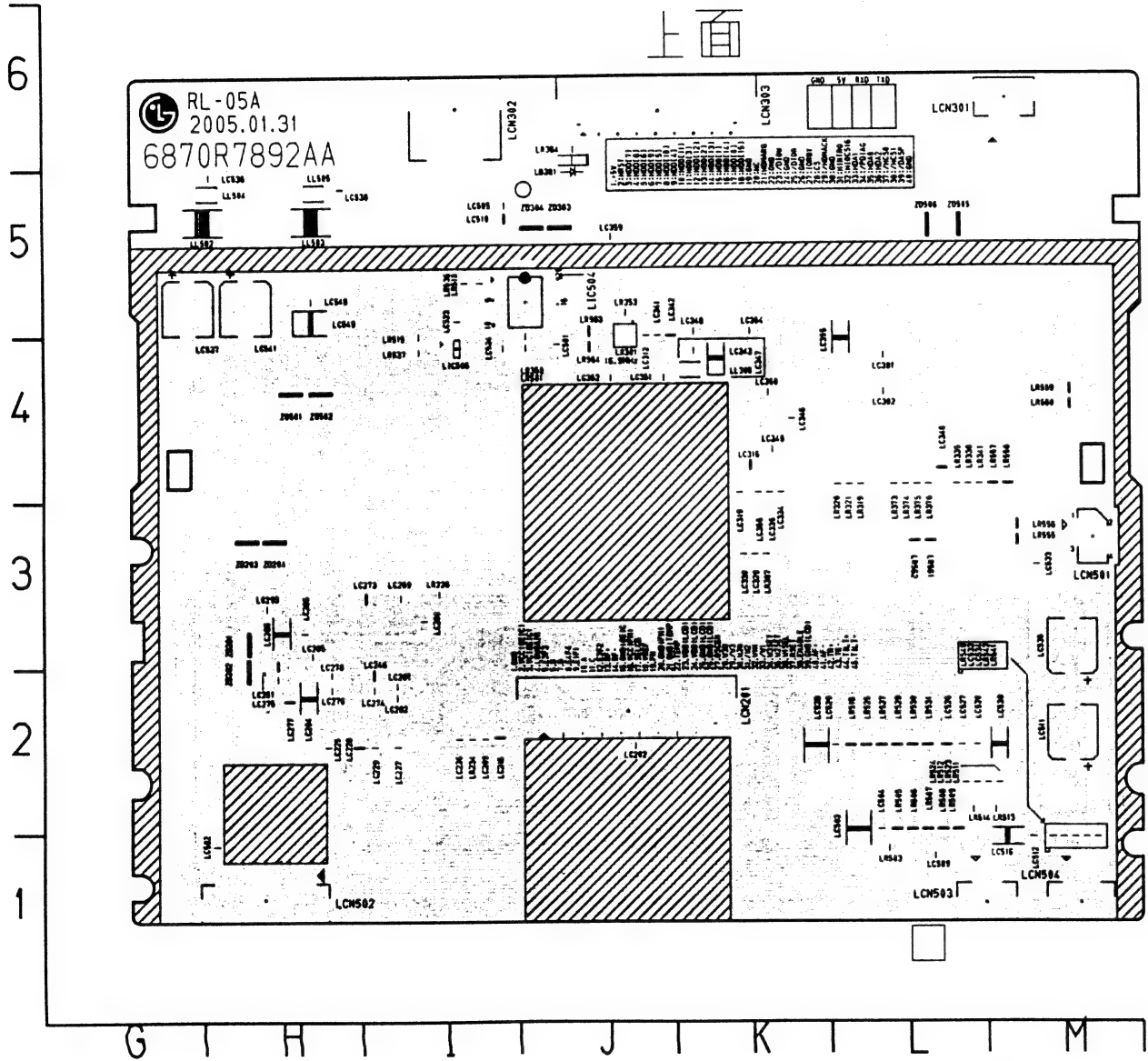
5-62

The diagrams show various integrated circuits (ICs) with their pinouts and internal circuitry. The components are:

- LIC501_MX26LV160TTC-70**: A 28-pin IC with a complex internal circuit.
- LIC504_74LVC3740APW**: A 28-pin IC with a complex internal circuit.
- LIC505_BA3258FFP**: A 5-pin IC with a simple internal circuit.
- LIC506_74LVC1G32GW**: A 5-pin IC with a simple internal circuit.
- LIC203_XC6206P212MR**: A 3-pin IC with a simple internal circuit.
- LIC204_NJM3404AV**: A 8-pin IC with a complex internal circuit.
- LIC202_KIC7W08FK**: A 8-pin IC with a complex internal circuit.
- LIC302_AT93C86**: A 5-pin IC with a simple internal circuit.
- LIC303_AAT3528**: A 4-pin IC with a simple internal circuit.
- LIC304_M12L16161A-7T**: A 28-pin IC with a complex internal circuit.
- LIC201_UPC3340**: A 40-pin IC with a complex internal circuit.
- LIC205_NC7S83157**: A 6-pin IC with a simple internal circuit.
- LIC204_NJM3404AV**: A 8-pin IC with a complex internal circuit.
- LIC202_KIC7W08FK**: A 8-pin IC with a complex internal circuit.
- LIC302_AT93C86**: A 5-pin IC with a simple internal circuit.
- LIC303_AAT3528**: A 4-pin IC with a simple internal circuit.
- LIC304_M12L16161A-7T**: A 28-pin IC with a complex internal circuit.

5-64

PRINTED CIRCUIT DIAGRAMS
1. MAIN P.C.BOARD



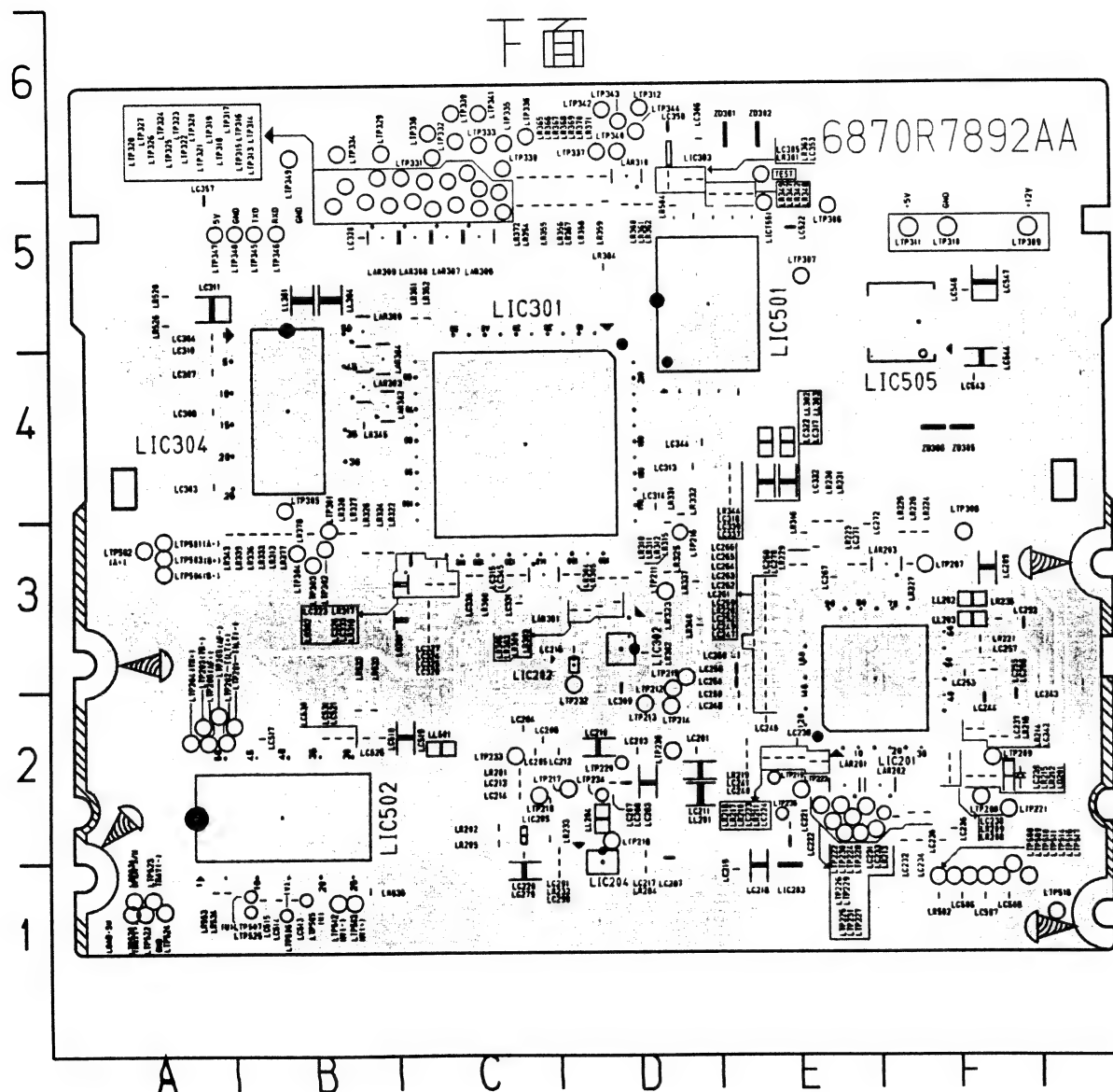
LOCATION GUIDE

LC202	J2	LC343	K4	LC541	H5	LIC7318L4	LIC7559L2	LR513	M2	
LC209	J2	LC346	K4	LC548	H5	LIC7319L4	LIC7561L2	LR514	L3	
LC215	J2	LC347	K4	LC549	H5	LIC7321L4	LIC7563L2	LR515	L4	
LC225	H2	LC348	K5	LCN201	J2	LIC7324L4	LIC7566L4	LR516	L2	
LC226	J2	LC349	K4	LCN301	M6	LIC7325L4	LIC7567L4	LR523	M2	
LC227	J2	LC350	K4	LCN302	J6	LIC7328L4	LIC7568J5	LR524	L2	
LC228	H2	LC351	J4	LCN303	J6	LIC7329L4	LL305	K4	LR525	L2
LC229	J2	LC352	J4	LCN501	M3	LIC7330K4	LL502	H5	LR527	L2
LC246	J2	LC354	K5	LCN502	H1	LIC7331K4	LL503	H5	LR529	L2
LC251	H3	LC355	L4	LCN503	L1	LIC7332L4	LL504	H5	LR530	L2
LC269	J3	LC356	K4	LCN504	M1	LIC7333L4	LL505	H5	LR531	L2
LC273	J3	LC359	J5	LD301	J6	LIC7335K4	LR226	I3	LR536	I5
LC274	J2	LC501	J4	LIC504	J5	LIC7336L4	LR234	I2	LR537	I4
LC275	H2	LC502	H1	LIC506	I4	LIC7337K1	LR307	K3	LR540	M1
LC276	H2	LC503	L2	LIC7202J3		LIC7339K2	LR319	L4	LR541	M1
LC277	H2	LC504	L2	LIC7203J2		LIC7353K3	LR320	L4	LR542	M1
LC278	H2	LC505	I5	LIC7211I2		LIC7354K3	LR321	L4	LR555	M3
LC280	I3	LC509	L1	LIC7238H3		LIC7361K4	LR335	L4	LR556	M3
LC281	I2	LC510	I5	LIC7247I3		LIC7362K3	LR338	L4	LR557	M4
LC282	I2	LC511	M2	LIC7265I3		LIC7364K3	LR341	L4	LR558	M4
LC284	H2	LC512	M1	LIC7277H3		LIC7370J4	LR350	J4	LR559	M4
LC285	H3	LC516	M1	LIC7301L4		LIC7374J5	LR353	J5	LR560	M4
LC286	H3	LC520	L2	LIC7302L5		LIC7378J5	LR364	J6	LR561	L3
LC288	H3	LC523	I5	LIC7303L5		LIC7383J5	LR373	L4	LR562	L3
LC293	H3	LC524	I4	LIC7304L4		LIC7501J4	LR374	L4	LR563	J5
LC301	L4	LC526	L2	LIC7305L4		LIC7502I4	LR375	L4	LR564	J4
LC302	L4	LC527	L2	LIC7306L4		LIC7505L1	LR376	L4	LR301	J4
LC312	J4	LC528	K2	LIC7307L4		LIC7516L2	LR501	J4	ZD201	H3
LC316	K4	LC529	L2	LIC7308L4		LIC7517L2	LR503	L1	ZD202	H2
LC319	K4	LC532	M1	LIC7309L4		LIC7526J4	LR505	L2	ZD203	H3
LC329	K3	LC533	M3	LIC7310L4		LIC7539J5	LR506	L2	ZD204	H3
LC330	K3	LC534	M1	LIC7311K4		LIC7541J5	LR507	L2	ZD303	J5
LC334	K4	LC535	M3	LIC7312L4		LIC7543J5	LR508	L2	ZD304	J5
LC335	K4	LC536	H5	LIC7313L4		LIC7545J5	LR509	L2	ZD501	H4
LC340	L4	LC537	G5	LIC7314L4		LIC7554I5	LR510	I5	ZD502	H4
LC341	J4	LC538	H5	LIC7315L4		LIC7555I5	LR511	M2	ZD505	L5
LC342	J4	LC539	M2	LIC7316L4		LIC7558M2	LR512	L2	ZD506	L5

LOCATION GUIDE

ECRF	E3	LC235	F2	LC292	F3	LC518	B2	LIC7220E2	LIC7270J3	LIC737104	LIC754405	LR220	E3	LR339	B3	LR553	A1	LRP105	B4	LRP346	B5
FE	E3	LC236	F2	LC303	A4	LC519	C2	LIC7221F2	LIC7273C3	LIC7384B5	LIC754605	LR221	F3	LR340	D3	LR554	A2	LRP106	E5	LRP347	A5
LR201	E2	LC237	F2	LC304	A5	LC520	B2	LIC7222E3	LIC7274C3	LIC7385C5	LIC754705	LR222	E3	LR341	E5	LR555	A3	LRP107	E5	LRP348	B5
LR202	E2	LC238	E3	LC305	06	LC521	E5	LIC7223F2	LIC7275C3	LIC7386C5	LIC754805	LR223	F3	LR342	A3	LR556	A4	LRP108	F3	LRP349	B6
LR203	F3	LC239	F2	LC306	06	LC522	B2	LIC7224C3	LIC7276C3	LIC7387C5	LIC754905	LR224	F3	LR343	A3	LR557	A5	LRP109	F5	LRP350	F3
LR301	C3	LC240	E2	LC307	A4	LC530	B2	LIC7225F2	LIC7317B4	LIC7388C5	LIC755005	LR225	F3	LR344	E4	LR558	A6	LRP110	F5	LRP351	A3
LR302	B4	LC241	E2	LC308	A4	LC531	B2	LIC7226C2	LIC7320B5	LIC7389C5	LIC7551E5	LR226	F3	LR345	B4	LR559	A7	LRP111	F5	LRP352	A3
LR303	B4	LC242	F2	LC309	03	LC543	F4	LIC7227F2	LIC7322B4	LIC7390C5	LIC7552E5	LR227	E3	LR346	E5	LR560	A8	LRP112	F5	LRP353	A3
LR304	B4	LC243	F2	LC310	A5	LC544	F4	LIC7228F2	LIC7323B4	LIC7391C5	LIC7553E5	LR228	E3	LR347	E5	LR561	A9	LRP113	F5	LRP354	A3
LR305	B5	LC244	F2	LC311	A5	LC546	F5	LIC7229F2	LIC7324B4	LIC7392C5	LIC7554E5	LR229	E3	LR348	E5	LR562	A10	LRP114	F5	LRP355	B1
LR306	C5	LC245	E2	LC312	04	LC547	F5	LIC7230E2	LIC7325B4	LIC7393C5	LIC7555E5	LR230	E3	LR349	E5	LR563	A11	LRP115	F5	LRP356	B1
LR307	C5	LC247	E2	LC314	04	LC548	F5	LIC7231E2	LIC7326B4	LIC7394C5	LIC7556E5	LR231	E3	LR350	E5	LR564	A12	LRP116	F5	LRP357	B1
LR308	C5	LC248	E2	LC315	03	LC549	F5	LIC7232E2	LIC7327B4	LIC7395C5	LIC7557E5	LR232	E3	LR351	E5	LR565	A13	LRP117	F5	LRP358	B1
LR309	B5	LC249	E2	LC317	E4	LC550	F5	LIC7233E2	LIC7328B4	LIC7396C5	LIC7558E5	LR233	E3	LR352	E5	LR566	A14	LRP118	F5	LRP359	B1
LR310	D5	LC250	E2	LC318	E4	LC551	F5	LIC7234E2	LIC7329B4	LIC7397C5	LIC7559E5	LR234	E3	LR353	E5	LR567	A15	LRP119	F5	LRP360	B1
LC201	D2	LC252	E3	LC320	B5	LC552	F5	LIC7235E2	LIC7330B4	LIC7398C5	LIC7560E5	LR235	E3	LR354	E5	LR568	A16	LRP120	F5	LRP361	B1
LC203	D2	LC253	F3	LC322	E4	LC553	F5	LIC7236E2	LIC7331B4	LIC7399C5	LIC7561E5	LR236	E3	LR355	E5	LR569	A17	LRP121	F5	LRP362	B1
LC204	D2	LC254	E3	LC323	F3	LC554	F5	LIC7237E2	LIC7332B4	LIC7400C5	LIC7562E5	LR237	E3	LR356	E5	LR570	A18	LRP122	F5	LRP363	B1
LC205	C2	LC255	F3	LC324	C3	LC555	F5	LIC7238E2	LIC7333B4	LIC7401C5	LIC7563E5	LR238	E3	LR357	E5	LR571	A19	LRP123	F5	LRP364	B1
LC206	C2	LC256	F3	LC325	C3	LC556	F5	LIC7239E2	LIC7334B4	LIC7402C5	LIC7564E5	LR239	E3	LR358	E5	LR572	A20	LRP124	F5	LRP365	B1
LC207	D2	LC257	F3	LC326	C3	LC557	F5	LIC7240E2	LIC7335B4	LIC7403C5	LIC7565E5	LR240	E3	LR359	E5	LR573	A21	LRP125	F5	LRP366	B1
LC208	D2	LC258	E3	LC327	C3	LC558	F5	LIC7241E2	LIC7336B4	LIC7404C5	LIC7566E5	LR241	E3	LR360	E5	LR574	A22	LRP126	F5	LRP367	B1
LC210	D2	LC259	E3	LC328	C3	LC559	F5	LIC7242E2	LIC7337B4	LIC7405C5	LIC7567E5	LR242	E3	LR361	E5	LR575	A23	LRP127	F5	LRP368	B1
LC211	D2	LC260	E3	LC331	C3	LC560	F5	LIC7243E2	LIC7338B4	LIC7406C5	LIC7568E5	LR243	E3	LR362	E5	LR576	A24	LRP128	F5	LRP369	B1
LC212	C2	LC261	E3	LC332	E3	LC561	F5	LIC7244E2	LIC7339B4	LIC7407C5	LIC7569E5	LR244	E3	LR363	E5	LR577	A25	LRP129	F5	LRP370	B1
LC213	C2	LC262	E3	LC333	C3	LC562	F5	LIC7245E2	LIC7340B4	LIC7408C5	LIC7570E5	LR245	E3	LR364	E5	LR578	A26	LRP130	F5	LRP371	B1
LC214	C2	LC263	E3	LC336	C3	LC563	F5	LIC7246E2	LIC7341B4	LIC7409C5	LIC7571E5	LR246	E3	LR365	E5	LR579	A27	LRP131	F5	LRP372	B1
LC216	D3	LC264	E3	LC337	E4	LC564	F5	LIC7247E2	LIC7342B4	LIC7410C5	LIC7572E5	LR247	E3	LR366	E5	LR580	A28	LRP132	F5	LRP373	B1
LC217	D2	LC265	E3	LC339	E4	LC565	F5	LIC7248E2	LIC7343B4	LIC7411C5	LIC7573E5	LR248	E3	LR367	E5	LR581	A29	LRP133	F5	LRP374	B1
LC218	E1	LC266	E3	LC344	04	LC566	F5	LIC7249E2	LIC7344B4	LIC7412C5	LIC7574E5	LR249	E3	LR368	E5	LR582	A30	LRP134	F5	LRP375	B1
LC219	E1	LC267	E3	LC345	C3	LC567	F5	LIC7250E2	LIC7345B4	LIC7413C5	LIC7575E5	LR250	E3	LR369	E5	LR583	A31	LRP135	F5	LRP376	B1
LC220	C2	LC268	E3	LC353	05	LC568	F5	LIC7251E2	LIC7346B4	LIC7414C5	LIC7576E5	LR251	E3	LR370	E5	LR584	A32	LRP136	F5	LRP377	B1
LC221	E2	LC270	E3	LC357	A5	LC569	F5	LIC7252E2	LIC7347B4	LIC7415C5	LIC7577E5	LR252	E3	LR371	E5	LR585	A33	LRP137	F5	LRP378	B1
LC222	E2	LC271	E3	LC358	06	LC570	F5	LIC7253E2	LIC7348B4	LIC7416C5	LIC7578E5	LR253	E3	LR372	E5	LR586	A34	LRP138	F5	LRP379	B1
LC223	E2	LC272	E3	LC506	F1	LC571	F5	LIC7254E2	LIC7349B4	LIC7417C5	LIC7579E5	LR254	E3	LR373	E5	LR587	A35	LRP139	F5	LRP380	B1
LC224	E2	LC279	C1	LC507	F1	LC572	F5	LIC7255E2	LIC7350B4	LIC7418C5	LIC7580E5	LR255	E3	LR374	E5	LR588	A36	LRP140	F5	LRP381	B1
LC229	F2	LC283	D2	LC508	F1	LC573	F5	LIC7256E2	LIC7351B4	LIC7419C5	LIC7581E5	LR256	E3	LR375	E5	LR589	A37	LRP141	F5	LRP382	B1
LC231	F2	LC287	D2	LC513	B1	LC574	F5	LIC7257E2	LIC7352B4	LIC7420C5	LIC7582E5	LR257	E3	LR376	E5	LR590	A38	LRP142	F5	LRP383	B1
LC232	F2	LC289	F3	LC514	B1	LC575	F5	LIC7258E2	LIC7353B4	LIC7421C5	LIC7583E5	LR258	E3	LR377	E5	LR591	A39	LRP143	F5	LRP384	B1
LC233	F2	LC290	C1	LC515	B1	LC576	F5	LIC7259E2	LIC7354B4	LIC7422C5	LIC7584E5	LR259	E3	LR378	E5	LR592	A40	LRP144	F5	LRP385	B1
LC234	F2	LC291	C2	LC517	B2	LC577	F5	LIC7260E2	LIC7355B4	LIC7423C5	LIC7585E5	LR260	E3	LR379	E5	LR593	A41	LRP145	F5	LRP386	B1

2. MAIN P.C.BOARD



MECHANICAL & ACCESSORIES PARTS LIST

SET & PACKAGING PARTS (FOR PAGES 2-2 TO 2-3)

261	9965 000 25780	RUBBER FOOT
264	9965 000 25779	FAN, DC 60X60X15MM
265	9965 000 25546	HOLDER, POWER CORD
266	9965 000 28797	BRACKET, MOUNTING
274	9965 000 26264	PLATE, AV GND

283	9965 000 25773	VCR DOOR
284	4822 492 42785	SPRING DOOR
285	9965 000 25774	DVD DOOR
286	9965 000 25776	SPRING, DVD DOOR
300	9965 000 28798	△ POWER CORD 01/02/19

300	9965 000 26265	△ POWER CORD 05
806	9965 000 25781	RF CABLE
811	9965 000 25782	VIDEO CABLE YEL
812	9965 000 25783	AUDIO CABLE WHITE/RED
821	9965 000 26260	SCART TO SCART 21 PIN DT_HY_HI

826	9965 000 28799	FILTER (CIRC), EMC
900	9965 000 28800	REMOTE CONTROL DVDR3320V
A00	9965 000 28801	VCR DECK MECH ASSEMBLY
A43	9965 000 28802	FRONT PANEL ASSEMBLY 01/02
A43	9965 000 28846	FRONT PANEL ASSEMBLY 05

A43	9965 000 28849	FRONT PANEL ASSEMBLY 19
A60	9965 000 28803	RL-05C LOADER (DVDR) MODULE

VCR MECHANISM PARTS (FOR PAGES 4-28 TO 4-30)

3	9965 000 25625	HOLDER, FPCB(6CH) - D37C MO
4	9965 000 25626	CAP, FPCB - D37C MOLD
8	9965 000 25627	CABLE, FLAT 7PIN 17CM
9	9965 000 25628	ARM, T/UP OTHER - D37
11	9965 000 25629	ARM ASSEMBLY, TENSION - D37

12	9965 000 25630	BASE ASSEMBLY, P2 - D37
12 *	9965 000 28830	BASE ASSEMBLY
13	9965 000 25631	BASE ASSEMBLY, P3 - D37
13 *	9965 000 28831	BASE ASSEMBLY
14	9965 000 25632	BASE ASSEMBLY, P4 - D37

15	9965 000 25633	OPENER, LID OTHER - D37
16	9965 000 28832	BASE ASSEMBLY
16 *	9965 000 28833	BASE ASSEMBLY
17	9965 000 28834	REEL
17 *	9965 000 25635	REEL, S OTHER - D37

21	9965 000 25636	BRAKE ASSEMBLY, T - D37
22	9965 000 25637	HEAD(CIRC), ST FE HEAD FOR D37
22 *	9965 000 28835	HEAD(CIRC)
23	9965 000 25638	BASE, LOADING OTHER - D37
24	9965 000 25639	ARM ASSEMBLY, IDLER(H)

26	9965 000 25640	MOTOR ASSEMBLY, L/D - (DI) D37
26 *	9965 000 28836	MOTOR ASSEMBLY
27	9965 000 25641	GEAR, WHEEL OTHER - D37
28	9965 000 25642	REEL, T OTHER - D37
29	9965 000 25643	ARM ASSEMBLY, PINCH - D37 (CHON)

29 *	9965 000 28837	ARM ASSEMBLY
29 *	9965 000 28838	ARM ASSEMBLY
31	9965 000 25644	SPRING, COIL TENSION - D37
51	9965 000 19315	CAPSTAN
52	9965 000 25645	MOTOR, CAPSTAN F2QV866 SANKYO FO

52 *	9965 000 25645	MOTOR, CAPSTAN F2QV866 SANKYO FO
52 *	9965 000 25645	MOTOR, CAPSTAN F2QV866 SANKYO FO
52A	9965 000 25660	SUPPORTER, CAPSTAN OTHER - D37
55	9965 000 25646	GEAR, DRIVE OTHER - D37
56	9965 000 25647	GEAR, CAM OTHER - D37

58	9965 000 25648	BRAKE ASSEMBLY, CAPSTAN - D37
60	9965 000 25649	LEVER, F/R OTHER - D37
61	9965 000 25650	CLUTCH ASSEMBLY, D37(M)
64	9965 000 25651	GEAR, SECTOR OTHER - D37
76	9965 000 25652	LEVER, SPRING OTHER - D37

77	9965 000 25653	PLATE, SLIDER OTHER - D37
78	9965 000 25654	LEVER, TENSION OTHER - D37
79	9965 000 25655	BASE, TENSION OTHER - D37
80	9965 000 25656	LEVER, BRAKE OTHER - D37
100	9965 000 25657	PLATE ASSEMBLY, TOP - D37

109	9965 000 25658	OPENER, DOOR OTHER - D37
405	9965 000 28839	SCREW MACHINE, PAN HEAD
406	4822 502 21655	SCREW MACHINE, PAN HEAD SPR W
409	9965 000 19341	+ 1 D2.6 L5.0 SWRCH18A/FZY TAP
410	9965 000 19342	D2.6 L6.8 MSWR3/FZY

517	9965 000 28840	WASHER, DRAWING
517 *	9965 000 28841	WASHER, DRAWING
518	9965 000 28842	WASHER, DRAWING
A01	9965 000 25617	DRUM(CIRC) ASSEMBLY, D37-6CH PAL
A11	9965 000 25619	GEAR ASSEMBLY, P3 - D37

A12	9965 000 25620	GEAR ASSEMBLY, P2 - D37
A21	9965 000 25621	HOLDER ASSEMBLY, CST - D37
A22	9965 000 25622	GEAR ASSEMBLY, RACK F/L - D37
A23	9965 000 25623	ARM ASSEMBLY, F/L - D37
A24	9965 000 25624	LEVER ASSEMBLY, SWITCH(C) - D37

Note: * ALTERNATIVE PART CODE
Only the parts mentioned in this list are normal service spare parts.

ELECTRICAL PARTS LIST

VCR MAIN BOARD ASSEMBLY

MISCELLANEOUS

323	9965 000 25560	CASE ASSEMBLY
BC91	9965 000 18585	BEAD CORE BFS3550R2FD8.R T/P
BC92	9965 000 18585	BEAD CORE BFS3550R2FD8.R T/P
CS501	9965 000 25563	SWITCH MPU12970MLB0
ES501	9965 000 25564	HOLDER ASSY VCR DECK/MECHA END/S
ES502	9965 000 25564	HOLDER ASSY VCR DECK/MECHA END/S
F903	9965 000 18627	CFI06B1H101MF SAMHWA TP 2.5K
F904	9965 000 18627	CFI06B1H101MF SAMHWA TP 2.5K
F905	9965 000 18627	CFI06B1H101MF SAMHWA TP 2.5K
F906	9965 000 18627	CFI06B1H101MF SAMHWA TP 2.5K
JK901	9965 000 25795	DVD/VCR OUT - Y/PR/PB + LR + CO
JK903	9965 000 25796	S-VIDEO OUT (REAR)
LD501	9965 000 25592	HOLDER ASSY, VCR DECK/MECHA END
MS501	9965 000 25594	SWITCH SSS-51MD-3 5VDC 1MA D3
MS501 *	9965 000 25595	SWITCH MMS010802MBO 5VDC 1MA D37
P3D01	9965 000 25801	FLEX SOCKET 9PIN VERT
P3D02	9965 000 25802	FLEX SOCKET 6PIN VERT
P3D03	9965 000 25803	SOCKET GB201-2P-TS-B
PM601	9965 000 25804	SOCKET, TUC-P12P-B1 12P
PM602	9965 000 25805	SOCKET, TUC-P05P-B1 5P 2.0MM
PMC01	9965 000 25806	SOCKET JE612-A2T-12A 12P 2.0M
PMD01	9965 000 25807	FLEX SOCKET 15PIN VERT
PMD02	9965 000 25808	FLEX SOCKET 30PIN VERT
PMP01	9965 000 28812	8283/9073 15PIN 240MM SHIELD
RS501	9965 000 25602	KIT-3001A REEL SENSOR
RS502	9965 000 25602	KIT-3001A REEL SENSOR
SC901	9965 000 25603	DOUBLE - SCART DSAM-0341
SW901	9965 000 25811	SLIDE SWITCH - RGB / COMPONENT
TU701	9965 000 25812	TUNER UNIT TADM-M901D 01/02/05 only
TU701	9965 000 25672	TUNER UNIT TADM-S101D 19 only
X301	9965 000 28814	HC-49/SB BUBANG 4.433619MHZ /
X501	9965 000 25815	X'TAL RESONATOR 14.31818MHZ
X502	9965 000 25611	X'TAL 32.768KHZ
X751	9965 000 18660	49U BUBANG 18432000HZ 30PPM 16

CAPACITORS

C313	9965 000 28804	0.022UF D 100V 5% PE TP5
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RESISTORS

COILS & FILTERS

L201	9965 000 25797	INDUCTOR 10UH 10% 02/19 only
L300	9965 000 28805	39UH 5% 4X5 TR5
L302	9965 000 28806	100UH 5% TP 4 X 5 TR5
L303	9965 000 28807	150UH 5% 4X5 TR5
L305	9965 000 28805	39UH 5% 4X5 TR5
L306	9965 000 28806	100UH 5% TP 4 X 5 TR5
L307	9965 000 28808	12UH 10% R 3X5 TR5
L308	9965 000 28806	100UH 5% TP 4 X 5 TR5
L311	9965 000 28806	100UH 5% TP 4 X 5 TR5

L503	9965 000 18641	100M K 6X6 L5 TP
L504	9965 000 18646	10M K 6X6 L5 TP
L505	9965 000 25799	INDUCTOR 12UH
L506	9965 000 25591	INDUCTOR 1UH, CHIP2012
L507	9965 000 25591	INDUCTOR 1UH, CHIP2012
L701	9965 000 18641	100M K 6X6 L5 TP
L704	9965 000 18646	10M K 6X6 L5 TP
L705	9965 000 18646	10M K 6X6 L5 TP
L7M1	9965 000 18646	10M K 6X6 L5 TP
L7V1	9965 000 18641	100M K 6X6 L5 TP
L801	9965 000 18641	100M K 6X6 L5 TP
L802	9965 000 18641	100M K 6X6 L5 TP
L901	9965 000 19456	10UH, CHIP2012 CERATECH R/TP
L902	9965 000 19456	10UH, CHIP2012 CERATECH R/TP
L903	9965 000 19456	10UH, CHIP2012 CERATECH R/TP
L904	9965 000 19456	10UH, CHIP2012 CERATECH R/TP
L905	9965 000 19456	10UH, CHIP2012 CERATECH R/TP
L906	9965 000 19456	10UH, CHIP2012 CERATECH R/TP
L907	9965 000 19456	10UH, CHIP2012 CERATECH R/TP
L908	9965 000 19456	10UH, CHIP2012 CERATECH R/TP
L909	9965 000 19456	10UH, CHIP2012 CERATECH R/TP
L910	9965 000 19456	10UH, CHIP2012 CERATECH R/TP
L911	9965 000 18646	10M K 6X6 L5 TP
L912	9965 000 25591	INDUCTOR 1UH, CHIP2012
L913	9965 000 25591	INDUCTOR 1UH, CHIP2012

DIODES

D8C1	9965 000 18686	RL104 R. TP GULF SEMICONDUCTOR
D8C2	9965 000 18686	RL104 R. TP GULF SEMICONDUCTOR
D201	9965 000 18565	RL104F 400V 1A /19 only
D901	9965 000 18565	RL104F 400V 1A
D902	9965 000 18565	RL104F 400V 1A
D903	9965 000 18565	RL104F 400V 1A
D904	9965 000 18565	RL104F 400V 1A
D905	9965 000 18565	RL104F 400V 1A
D906	9965 000 18565	RL104F 400V 1A
ZD801	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25
ZD802	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25
ZD901	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25
ZD902	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25
ZD903	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25
ZD904	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25
ZD905	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25
ZD906	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25
ZD907	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25
ZD908	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25
ZD925	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25
ZD926	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25
ZD927	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25
ZD928	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25

ELECTRICAL PARTS LIST

TRANSISTORS

Q301	9965 000 18651	2SC5344Y TP
Q301 *	9965 000 25599	KTC3203 KEC TP TO92 50V 150MA
Q302	9965 000 25598	STB1277LY-AT TP TO-9 AUK KOREA
Q302 *	9965 000 25597	KSA928A-Y TO-92L TP SAMSUNG TO
Q302 *	9965 000 25810	KTA1273-TP-Y (KTA966A)KEC
Q303	9965 000 28811	DTC124EK TP ROHM KOREA SOT23 3
Q303 *	9965 000 28813	AUK KOREA SRC1203S R/TP SOT23
Q303 *	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q305	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q306	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q307	9965 000 26162	KRA103S-T1
Q310	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q501	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q503	9965 000 25810	KTA1273-TP-Y (KTA966A)KEC
Q504	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q505	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q506	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q514	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q515	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q701	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q704	9965 000 25810	KTA1273-TP-Y (KTA966A)KEC
Q751	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC <small>(19 only)</small>
Q752	9965 000 16624	CHIP TRANSISTOR KRC103S RTK <small>(19 only)</small>
Q8C1	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q901	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q902	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q903	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q904	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q905	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q906	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q907	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q910	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q911	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q912	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC

INTEGRATED CIRCUITS

IC201	9965 000 25670	LA70100M-TRM SANYO	02/19 only
IC301	9965 000 28809	HA118725AF-E PB-FREE HITACHI 1	
IC501	9965 000 28810	MM101D101F LJ MATSUSHITA 100PI	
IC503	9965 000 18632	CAT24W16P 8P DIP ST 16K SERIAL	
IC504	9965 000 18633	KIA7031P 3P 3.1V RESET(TAPING)	
IC505	9965 000 18634	KIA7042P	
IC751	9965 000 14760	AUD UP MSP3417G-QG-BB-V3	
IC7V1	9965 000 25582	SDA5650X GEG MICRONAS 20PIN SO	
IC801	9352 631 46557	IC SM TDA9605H/N2	
IC802	9965 000 25583	MM1443XJBE MITSUMI 34PIN SSOP	
IC901	9965 000 18573	MM1623XFB MITSUMI 28PIN SOP R	

Note: * ALTERNATIVE PART CODE

Only the parts mentioned in this list are normal service spare parts.

FRONT JACK PC BOARD

MISCELLANEOUS

JK761	9965 000 25958	S-VIDEO SOCKET
JK762	9965 000 26261	CINCH SOCKET WHITE
JK763	9965 000 26262	CINCH SOCKET RED
JK764	9965 000 26263	CINCH SOCKET YELLOW
JK765	9965 000 28829	DV-IN SOCKET

COILS & FILTERS

F701	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
F702	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
F703	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
F704	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
L701	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
L702	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
L703	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
L704	9965 000 18648	100M K 2.3X3.4 L5 TP
L705	9965 000 18648	100M K 2.3X3.4 L5 TP

TIMER (DISPLAY) + KEY PC BOARDS

MISCELLANEOUS

DIG601	9965 000 25949	FTD DISPLAY HNV-12SM79T
P6M01	9965 000 25953	CONN. PLUG TUC-P12X-B1 12P
P6M03	9965 000 25954	CONN. PLUG TUC-P05X-B1 5PIN
RC601	9965 000 25955	REM RECEIVER TSOP24385B1
RC601 *	9965 000 25956	REM RECEIVER TSOP1838RF1
SW601	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW601 *	9965 000 25957	TACT SWITCH SKQNOED 12V 50MA
SW602	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW602 *	9965 000 25957	TACT SWITCH SKQNOED 12V 50MA
SW603	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW603 *	9965 000 25957	TACT SWITCH SKQNOED 12V 50MA
SW604	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW604 *	9965 000 25957	TACT SWITCH SKQNOED 12V 50MA
SW605	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW605 *	9965 000 25957	TACT SWITCH SKQNOED 12V 50MA
SW606	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW606 *	9965 000 25957	TACT SWITCH SKQNOED 12V 50MA
SW607	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW607 *	9965 000 25957	TACT SWITCH SKQNOED 12V 50MA
SW608	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW610	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW610 *	9965 000 25957	TACT SWITCH SKQNOED 12V 50MA
SW611	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW611 *	9965 000 25957	TACT SWITCH SKQNOED 12V 50MA
SW612	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW612 *	9965 000 25957	TACT SWITCH SKQNOED 12V 50MA
SW613	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW613 *	9965 000 25957	TACT SWITCH SKQNOED 12V 50MA
SW614	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-

ELECTRICAL PARTS LIST

MISCELLANEOUS

SW614 *	9965 000 25957	TACT SWITCH SKQNOED 12V 50MA
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CAPACITORS

C602	9965 000 28828	TANTALUM CAP 220UF 10V 20%
C602 *	9965 000 28827	TANTALUM CAP 220UF 10V 20%

RESISTORS

R626	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
R607	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
R608	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
R609	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT

COIL & FILTERS

L601	9965 000 19251	820UH 5% 4X5 TR5
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DIODES

LED601	9965 000 25951	SA3417 TP RED
LED602	9965 000 25952	SY3517 BK AMBER
LED603	9965 000 25952	SY3517 BK AMBER
LED604	9965 000 25952	SY3517 BK AMBER
LED605	9965 000 25952	SY3517 BK AMBER
LED606	9965 000 25951	SA3417 TP RED
LED606 *	9965 000 26158	LED DL-11S2RNS RED
LED607	9965 000 25951	SA3417 TP RED
LED607 *	9965 000 26158	LED DL-11S2RNS RED

TRANSISTORS & INTEGRATED CIRCUITS

IC601	9965 000 25950	PT6315 PTC 44 LQFP TRAY VFD DR
Q601	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q604	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC

Note: * ALTERNATIVE PART CODE

Only the parts mentioned in this list are normal service spare parts.

VDR (DIGITAL) BOARD

MISCELLANEOUS

CON401	9965 000 25920	FLEX SOCKET 40PIN VERT
PN301	9965 000 25941	CONN SOCKET 15PIN VERT
PN302	9965 000 25941	CONN SOCKET 15PIN VERT
PN303	9965 000 25942	FLEX SOCKET 15PIN VERT
PN304	9965 000 25943	FLEX SOCKET 30PIN VERT
X101	9965 000 25945	CRYSTAL RESONATOR 13.5 MHZ
X501	9965 000 25946	CRYSTAL RESONATOR 14.31818MHZ
X601	9965 000 25947	CRYSTAL RESONATOR 24.576MHZ

CAPACITORS

C107	9965 000 25907	TANTALUM CAP 47UF 10V 20%
C109	9965 000 25908	TANTALUM CAP 10UF 10V
C121	9965 000 25908	TANTALUM CAP 10UF 10V
C123	9965 000 25908	TANTALUM CAP 10UF 10V
C135	9965 000 25908	TANTALUM CAP 10UF 10V
C136	9965 000 25908	TANTALUM CAP 10UF 10V
C149	9965 000 25908	TANTALUM CAP 10UF 10V
C162	9965 000 25908	TANTALUM CAP 10UF 10V
C303	9965 000 25910	TANTALUM CAP 330UF 6.3V 20%
C305	9965 000 25911	ELCAP 220UF 6.3V
C306	9965 000 25912	TANTALUM CAP 122UF 10V
C309	9965 000 25911	ELCAP 220UF 6.3V
C311	9965 000 25911	ELCAP 220UF 6.3V
C312	9965 000 25911	ELCAP 220UF 6.3V
C313	9965 000 25911	ELCAP 220UF 6.3V
C318	9965 000 25911	ELCAP 220UF 6.3V
C320	9965 000 25911	ELCAP 220UF 6.3V
C403	9965 000 25912	TANTALUM CAP 22UF 10V
C504	9965 000 25913	ELCAP 100UF 16V
C507	9965 000 25914	ELCAP 22UF 16V
C508	9965 000 25915	ELCAP 10UF 16V
C509	9965 000 25915	ELCAP 10UF 16V
C510	9965 000 25915	ELCAP 10UF 16V
C519	9965 000 25916	TANTALUM CAP 10UF 16V 20%
C535	9965 000 25916	TANTALUM CAP 10UF 16V 20%
C537	9965 000 25916	TANTALUM CAP 10UF 16V 20%
C628	9965 000 25917	TANTALUM CAP 1UF 16V
C629	9965 000 25917	TANTALUM CAP 1UF 16V
C630	9965 000 25912	TANTALUM CAP 22UF 10V
C803	9965 000 25918	ELCAP 47UF 16V
C805	9965 000 25914	ELCAP 22UF 16V
C808	9965 000 25914	ELCAP 22UF 16V
C810	9965 000 25914	ELCAP 22UF 16V
C813	9965 000 25915	ELCAP 10UF 16V
C815	9965 000 25918	ELCAP 47UF 16V
C820	9965 000 25915	ELCAP 10UF 16V
C822	9965 000 25915	ELCAP 10UF 16V
C824	9965 000 25915	ELCAP 10UF 16V
C828	9965 000 25918	ELCAP 47UF 16V
C829	9965 000 25915	ELCAP 10UF 16V

ELECTRICAL PARTS LIST

CAPACITORS

C831	9965 000 25915	ELCAP 10UF 16V
C833	9965 000 25918	ELCAP 47UF 16V
C835	9965 000 28815	3.3UF 50V 20% 85STD (CYL) R/TP
C836	9965 000 25915	ELCAP 10UF 16V
C837	9965 000 25918	ELCAP 47UF 16V
C840	9965 000 25914	ELCAP 22UF 16V
C841	9965 000 25914	ELCAP 22UF 16V
C845	9965 000 25914	ELCAP 22UF 16V
C847	9965 000 25918	ELCAP 47UF 16V
C849	9965 000 25918	ELCAP 47UF 16V
C899	9965 000 25915	ELCAP 10UF 16V
C1201	9965 000 25843	TANTALUM CAP 10UF 6.3V 20%
C1208	9965 000 25843	TANTALUM CAP 10UF 6.3V 20%
C1262	9965 000 25843	TANTALUM CAP 10UF 6.3V 20%
C1272	9965 000 25843	TANTALUM CAP 10UF 6.3V 20%
C1282	9965 000 25910	TANTALUM CAP 330UF 6.3V 20%
C1282	9965 000 25909	TANTALUM CAP 330UF 6.3V 20%
C1287	9965 000 25910	TANTALUM CAP 330UF 6.3V 20%
C1287	9965 000 25909	TANTALUM CAP 330UF 6.3V 20%
C1288	9965 000 25910	TANTALUM CAP 330UF 6.3V 20%
C1288	9965 000 25909	TANTALUM CAP 330UF 6.3V 20%
C1289	9965 000 25910	TANTALUM CAP 330UF 6.3V 20%
C1289	9965 000 25909	TANTALUM CAP 330UF 6.3V 20%
C1291	9965 000 25839	TANTALUM CAP 22UF 16V 20%
C1293	9965 000 25909	TANTALUM CAP 330UF 6.3V 20%
C1293	9965 000 25910	TANTALUM CAP 330UF 6.3V 20%
C1295	9965 000 25910	TANTALUM CAP 330UF 6.3V 20%
C1295	9965 000 25909	TANTALUM CAP 330UF 6.3V 20%
C5108	9965 000 25916	TANTALUM CAP 10UF 16V 20%
C5109	9965 000 25916	TANTALUM CAP 10UF 16V 20%
C5110	9965 000 25916	TANTALUM CAP 10UF 16V 20%

RESISTORS

R307	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
R308	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
R506	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT

COILS & FILTERS

FB801	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB802	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB803	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB804	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB805	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB821	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB822	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB823	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB824	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB825	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB826	9965 000 18575	HB-1M2012-102JT CERATECH TP
FL503	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
FL504	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT

FL505	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
FL506	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
FL507	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
L102	9965 000 18575	HB-1M2012-102JT CERATECH TP
L103	9965 000 18575	HB-1M2012-102JT CERATECH TP
L104	9965 000 18575	HB-1M2012-102JT CERATECH TP
L105	9965 000 18575	HB-1M2012-102JT CERATECH TP
L106	9965 000 18575	HB-1M2012-102JT CERATECH TP
L107	9965 000 18575	HB-1M2012-102JT CERATECH TP
L302	9965 000 25939	BEAD C,HH-1H4532-121JT
L303	9965 000 25939	BEAD C,HH-1H4532-121JT
L304	9965 000 25939	BEAD C,HH-1H4532-121JT
L305	9965 000 25939	BEAD C,HH-1H4532-121JT
L306	9965 000 25939	BEAD C,HH-1H4532-121JT
L307	9965 000 25939	BEAD C,HH-1H4532-121JT
L308	9965 000 25939	BEAD C,HH-1H4532-121JT
L501	9965 000 18575	HB-1M2012-102JT CERATECH TP
L502	9965 000 18575	HB-1M2012-102JT CERATECH TP
L503	9965 000 18575	HB-1M2012-102JT CERATECH TP
L504	9965 000 18575	HB-1M2012-102JT CERATECH TP
L606	9965 000 18575	HB-1M2012-102JT CERATECH TP
L607	9965 000 18575	HB-1M2012-102JT CERATECH TP
L608	9965 000 18575	HB-1M2012-102JT CERATECH TP
L609	9965 000 28824	HB-1S1608-121 CERATECH TP
L610	9965 000 28824	HB-1S1608-121 CERATECH TP
L611	9965 000 28824	HB-1S1608-121 CERATECH TP
L612	9965 000 28824	HB-1S1608-121 CERATECH TP
L1201	9965 000 25939	BEAD C,HH-1H4532-121JT
L1202	9965 000 18575	HB-1M2012-102JT CERATECH TP
L1203	9965 000 25939	BEAD C,HH-1H4532-121JT
L1204	9965 000 25939	BEAD C,HH-1H4532-121JT
L5101	9965 000 18575	HB-1M2012-102JT CERATECH TP
L5102	9965 000 18575	HB-1M2012-102JT CERATECH TP
L5103	9965 000 18575	HB-1M2012-102JT CERATECH TP

DIODES

D101	4822 130 83649	1SS355
D102	4822 130 83649	1SS355

TRANSISTORS

Q402	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q403	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q404	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q807	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q808	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC

INTEGRATED CIRCUITS

IC101	9965 000 28816	DMN-8602 B0 LEAD FREE LSI LOGI
IC301A	9965 000 28819	FLASH IC W/SW PROGRAM
IC302	9965 000 25927	74HC123 PHILIPS 14PIN, TSSOP R
IC304	9965 000 25928	SS24A60X51-SC70 8P SOP TP EEP R
IC402	9965 000 25929	74LVC08APW PHILIPS 14PIN TSSOP

ELECTRICAL PARTS LIST

INTEGRATED CIRCUITS

IC406	9965 000 25930	74LVT16373A DGG PHILIPS 48PIN
IC409	9965 000 25931	74LVC04APW PHILIPS 14PIN TSSOP
IC501	9965 000 25932	NJM2274R JRC VSP8 R/TP LOW POW
IC502	9965 000 28820	L2146 LSI LOGIC 80PIN, TQFP TRA
IC601	9965 000 25935	TSB41AB1PHP TEXAS INSTRUMENT 4
IC802	9965 000 28822	CS4351-CZZR CIRRUS LOGIC 20PIN
IC803	9965 000 25936	MC33202DR2 ON SEMI 8PIN SOP R/
IC804	9965 000 28823	CS5340-CZZR CIRRUS LOGIC 16PIN
IC805	9965 000 25936	MC33202DR2 ON SEMI 8PIN SOP R/
IC1201	9965 000 28817	G2995F1UF GMT 8PIN, SOP-8L R/TP
IC1202	9965 000 25924	HYB25D256160CE-6 INFINEON 66PI
IC1202	9965 000 25925	HYSDU561622C HYNIX 66PIN, TSOP
IC1202	9965 000 28818	HYSDU561622DT-J HYNIX 66PIN, TS
IC1203	9965 000 25924	HYB25D256160CE-6 INFINEON 66PI
IC1203	9965 000 28818	HYSDU561622DT-J HYNIX 66PIN, TS
IC1203	9965 000 25925	HYSDU561622C HYNIX 66PIN, TSOP
IC5101	9965 000 28821	SAA7120H PHILIPS 44 QFP TRAY V

Note:

* ALTERNATIVE PART CODE

Only the parts mentioned in this list are normal service spare parts.

POWER (SMPS) BOARD MODULE

MISCELLANEOUS

BC101	9965 000 25876	BEAD CORE BFD3514R2F R T P
BC102	9965 000 25876	BEAD CORE BFD3514R2F R T P
BD101	9965 000 25877	GBL08 VISHAY BK GBL 800V 4A 20
F101	4822 070 31602	△ FUSE 1.6A 250V 2X20
PW101	9965 000 25897	CONN SOCKET 2PIN, AC IN
T101	9965 000 25900	△ EER2828 COMPLEX MODEL SOOJUNG
T102	9965 000 25901	△ EER2828 COMPLEX MODEL SOOJUNG
TH01	9965 000 25902	THERMISTOR, PTC 4.0OHM 15
V101	9965 000 19235	△ SVC681D-10A SAMHWA 4 O CUT

CAPACITORS

C101	9965 000 28825	△ MPX104K 275VAC BULK ETR
C101 *	9965 000 25878	△ PCX2 275V 0.1UF.M (PILKO)
C101 *	9965 000 18666	△ 435D SUNIL ELECTRONICS 0.1UF/2
C102	9965 000 28825	△ MPX104K 275VAC BULK ETR
C102 *	9965 000 25878	△ PCX2 275V 0.1UF.M (PILKO)
C102 *	9965 000 18666	△ 435D SUNIL ELECTRONICS 0.1UF/2
ELCAP	9965 000 25879	ELCAP 150UF 400V 20%
C105	9965 000 18669	0.01UF D 630V K PE NI TP
C106	9965 000 25551	CAP HIGH-VOL 68PF 1KV
C110	9965 000 18672	△ 1000PF 400V M E(Z5U) R
C111	9965 000 18672	△ 1000PF 400V M E(Z5U) R
C115	9965 000 18669	0.01UF D 630V K PE NI TP
C116	9965 000 25551	CAP HIGH-VOL 68PF 1KV
C122	4822 124 40201	1000UF20% 16V
C123	9965 000 25552	ELCAP 2200UF 16V 20% BK7.5 FL
C125	4822 124 40184	1000UF20% 10V
C126	9965 000 25552	ELCAP 2200UF 16V 20% BK7.5 FL
C129	9965 000 25552	ELCAP 2200UF 16V 20% BK7.5 FL
C139	9965 000 25880	1000UF KMG 25V 20% BULK FL

RESISTORS

R100	9965 000 19226	1.5M OHM 1/2 W 5.00% MF10
R103	9965 000 19228	56K OHM 2 W 5.00% TR
R112	9965 000 19228	56K OHM 2 W 5.00% TR
R115	9965 000 19228	56K OHM 2 W 5.00% TR
R155	9965 000 25899	56 OHM 1 W 5.00% TR

COILS & FILTERS

L102	9965 000 25895	△ SQ2626 SAMWAH TECOM BK SQ2424
L121	9965 000 25588	CHOKE COIL TDK 22UH(±633-088G
L121 *	9965 000 19212	CHOCK(22MH) 5MM TOKO TP
L122	9965 000 25588	CHOKE COIL TDK 22UH(±633-088G
L122 *	9965 000 19212	CHOCK(22MH) 5MM TOKO TP
L123	9965 000 25896	BAR CHOKE COIL 2 PIN 10 UHCCAR
L125	9965 000 18641	100M K 6X6 L5 TP
L127	9965 000 19212	CHOCK(22MH) 5MM TOKO TP

DIODES

D101	9965 000 18682	ERA22-10 KFLB,TP,R,T/P,FUJI
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ELECTRICAL PARTS LIST

DIODES

D102	9965 000 18683	EU01W(R-FORM) TP SANKEN
D103	9965 000 18682	ERA22-10 KFLB,TP ,R T/P,FUJI
D104	9965 000 18683	EU01W(R-FORM) TP SANKEN
D121	9965 000 25882	S8360-24A GULF BK DO201AD 60V
D121 *	9965 000 25881	D356M SHINDENGEN BK AX14 60V 1
D122	9965 000 18687	B10A45V1 BK KEC TO220 45V 10A
D123	9965 000 18687	B10A45V1 BK KEC TO220 45V 10A
D124	9965 000 25883	B5A60VI, 4MM CUTTING KEC ST T
D124 *	9965 000 28826	FSQ05A60 4MM CUTTING NIHON INT
D125	9965 000 18684	HER302 BK RECTRON DO201AD 100V
D125 *	9965 000 25554	DIODE RU4YX BK
D126	9965 000 18684	HER302 BK RECTRON DO201AD 100V
D126 *	9965 000 25554	DIODE RU4YX BK
D127	9965 000 18565	RL104F TP RECTRON NON 400V 1A
D128	9965 000 18683	EU01W(R-FORM) TP SANKEN
D129	9965 000 18565	RL104F TP RECTRON NON 400V 1A
D130	9965 000 18683	EU01W(R-FORM) TP SANKEN
D132	9965 000 18686	RL104 R. TP GULF SEMICONDUCTOR
D133	9965 000 18686	RL104 R. TP GULF SEMICONDUCTOR
D134	4822 130 32778	1SS133
D151	9965 000 18686	RL104 R. TP GULF SEMICONDUCTOR
D155	9965 000 18686	RL104 R. TP GULF SEMICONDUCTOR
ZD101	9965 000 25559	ZENER UZ-22BSB 26MM
ZD101 *	9965 000 25903	MTZ22B T-77 TP ROHM
ZD102	9965 000 25559	ZENER UZ-22BSB 26MM
ZD102 *	9965 000 25903	MTZ22B T-77 TP ROHM
ZD151	9965 000 19243	UZ-3.3BSB 26MM TP PYUNG CHANG
ZD151 *	9965 000 25906	MTZ3.3B,T-77(26MMTP) TP ROHM
ZD151 *	9965 000 25905	MTZ3.3B TP ROHM-K DO34 0.5W 3
ZD151 *	9965 000 25904	GDZ3.3B TP GRANDE DO34 0.5W 3
ZD152	9965 000 25613	ZENER UZ-13BSA 26MM
ZD153	9965 000 19244	UZ-30BSC 26MM PYUNG CHANG TP D

TRANSISTORS

Q120	4822 130 63857	KTD1414
Q121	9965 000 19214	SRA2203 TP AUK TO92 22K,22K
Q122	9965 000 19224	2SC5343-L TP AUK TO92
Q122 *	4822 130 41319	2SC1815BL
Q123	9965 000 19225	KTA1268-BL TP KEC
Q124	9965 000 25810	KTA1273-TP-Y (KTA966A)KEC
Q125	4822 130 41319	2SC1815BL
Q125 *	9965 000 19224	2SC5343-L TP AUK TO92
Q126	4822 130 41306	2SC1815GR

INTEGRATED CIRCUITS

IC101	9965 000 25555	IC FSDL0365RN 8PIN,DIP
IC102	9965 000 18689	Δ LTV-817B,PHOTO COUPLER(LITEON)
IC102 *	9965 000 25884	Δ PC123YN2 SHARP PHOTOCOUPLER
IC103	4822 209 12767	KIA431
IC104	9965 000 25555	IC FSDL0365RN 8PIN,DIP
IC105	9965 000 18689	Δ LTV-817B,PHOTO COUPLER(LITEON)
IC105 *	9965 000 25884	Δ PC123YN2 SHARP PHOTOCOUPLER

IC106	4822 209 12767	KIA431
IC151	9965 000 25887	KIA278R05PI-CU KEC 4PIN.TO220I
IC151 *	9965 000 25886	KA278R05TSTU FAIRCHILD 4PIN.TO
IC152	9965 000 25888	KIA78R25PICU KEC 4PIN.TO-220IS
IC152 *	9965 000 25889	G9125 GMT 4PIN.TO 220F-4L ST 1
IC154	9965 000 25890	G9233 GMT 4PIN. TO 220F-4L ST
IC154 *	9965 000 25891	KA278R33TSTU FAIRCHILD 4PIN TO
IC154 *	9965 000 19210	KIA278R33PI-CU KEC 4PIN TO-220
IC157	9965 000 25893	KIA278R12PI-CU KEC 4PIN.TO220I
IC157 *	9965 000 25892	KA278R12TSTU FAIRCHILD 4P TO-2
IC160	9965 000 25894	PQ070VK02LZH SHARP 5PIN.DIP ST

Note: * Alternative parts

Only the parts mentioned in this list are normal service spare parts.